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Original Communications.

ART. I.—*Cases of Renal Disease treated in the New York Hospital, from January to April*, 1844. By JOHN A. SWETT, M. D.

THE following report embraces the history of eight cases of that formidable disease of the kidney attended by dropsy and by the deposit of albumen in the urine. Different names have been assigned to it by those who have devoted most attention to its study. Thus, by Rayer, it has been called Albuminous Nephritis; by Christison, Granular Kidney; by Martin Solon, Albuminurie; by Prout, Serous Urine. But, as I believe that none of these names convey a true idea of the pathology of this disease, which may still be regarded as the subject of investigation, I have affixed to it the name of Dr. Bright, of Guy's Hospital, to whom belongs the merit of having first studied it in its true light, as a disease of the kidneys. I have added two cases of diabetes, both well-marked cases of a disease which, if not seated in the kidneys, yet acts most powerfully on the functions of those organs. It was my intention also to have included an analysis of the cases of pneumonia and other pulmonary diseases, which occurred during my attendance at the hospital, but time will not permit.

CASE I.—*Bright's Disease, terminating fatally with vomiting and convulsions: latent pneumonia.*—Mary Burke, æt. 31 years, widow, born in Ireland, entered the New York Hospital, Nov. 27th, 1843. She was delivered of a healthy child on the 9th of March. Towards the latter end of the month, she began to complain of a dull, gnawing pain in the lumbar region, and pain in her limbs. She, at the same time, noticed that her urine was more pale than natural; her bowels were costive. Early in April, her feet became œdematous, one somewhat sooner than the other; the œdema gradually extending up the limbs and reaching the abdomen at the end of a month. Since this period, her general condition has continued nearly the same; the œdema, however, has gradually increased. About three weeks ago, she was attacked with a mild dysen-

tery, which still continues. Her menses have not re-appeared since her confinement in March.

At the time of her admission, there was considerable œdema of the lower extremities, extending to the abdomen; pain and feeling of weakness in back; urine pale and quantity much increased; copious deposit of albumen by the addition of nitric acid; tongue slightly coated in the centre, moist, red and glossy at edges and tip; appetite good. Has had four passages from the bowels during the last twenty-four hours; thin, slimy, without blood; attended with pain and griping. Skin dry, and rather warm; pulse 100, small and weak. Sp. Nit. dulc. Syr. Scillæ, Mucilage. Morphine at night. Decoc. Querc.

December 5.—Anasarca continues as before; still complains of a dull, aching pain in the back, which is not, however, severe; passes from five to six pints of urine in twenty-four hours; dysentery continues, but with less pain; tongue clean, and of a bright red color; pulse 112, of moderate strength, jerking; skin dry and harsh; cough.

The treatment consists of an expectorant mixture to relieve the cough, with an anodyne at night. December 19th she began to use the argent. nit. (gr. $\frac{1}{4}$) in combination with opium gr. ss., continuing the expectorant mixture.

December 24.—Was seized at night with pain in the lumbar region shooting through the pelvis; soon afterwards vomiting of a dark matter ensued, with pain and tenderness in the epigastrium, and pain in the head; diarrhœa continues; tongue slightly coated; pulse 136, quick, weak, irritable; cheeks flushed; skin moderately hot. ℞ Pil. Hydr. grs. v. ter in die.

December 27.—Vomiting continued until this morning; tongue clean, bright red; still complains of pain in the epigastrium and in the head; pulse 116, quick; skin rather hot but moist; diarrhœa continues; six to seven stools in twenty-four hours. ℞ Pil. Hydr. grs. v. ter in die.

December 29.—Face flushed; headache severe; a good deal of nervous irritability; pulse 116, of moderate strength and compressible; skin rather hot and dry; tongue slightly coated; papillæ distinct; stools yellowish and watery; less pain in the back; œdema continues as before.

December 30.—Headache continues severe; cheeks flushed; frequent vomiting of bile mixed with depraved mucus; pain in epigastrium continues, increased by motion and by vomiting; stools less frequent, but light-colored and watery.

January 1.—Attacked with convulsions last night, the vomiting of a greenish yellow fluid continuing. Death ensued in a few hours.

Post-mortem examination, twelve hours after death. Head not examined.

The right lung was almost entirely affected with pneumonia in the first and second stages; the left lung was healthy.

The stomach, when opened, presented the mucous membrane of a greyish color, mamillated, rather thickened, but without softening; intestines healthy; the liver presented the first stage of cirrhosis.

The kidneys, surrounded by a good deal of fat, were much enlarged (two-thirds); of an uniform pale yellow color, with a few vessels only ramifying on the external surface. On removing the capsule, the surface of the kidney was smooth; and, on a close examination, granulations of a deeper yellow tint than the surrounding portions were noticed. Dividing the organ, its substance appeared softer than natural, flabby and watery; the cortical portion was hypertrophied, and presented distinct

granulations. The tubular portions were very distinct, of a livid red color, deformed, diminished in size, with their bases spread out, and the fibres separated, from the encroachment of the cortical substance; pelves of the kidneys and ureters natural.

The condition of the kidneys was carefully noticed in the post-mortem examination, and it is on this account that the case appears most worthy of notice, as presenting a well-marked specimen of this new and interesting disease. It is to be regretted that the head was not examined; but, judging from the experience of other cases, it is not probable that any marked anatomical changes would have been noticed. The nervous system seems to be poisoned by the morbid condition of the kidneys, and the most violent cerebral symptoms, as convulsions and coma, may ensue, without leaving any anatomical lesion behind them. The stomach presented the appearances of chronic inflammation, yet the symptoms were recent and acute. The liver, like the kidneys, was more or less granular. This coincidence of granular kidney and granular liver has been very frequent in my observation of these diseases. Indeed, I think no one can examine carefully the two diseases without being struck with their great resemblance at least, if not induced to believe in their common nature. The extensive but latent pneumonia which occurred in the above case is also worthy of notice.

Case II.—*Bright's Disease in a patient with tubercular phthisis: latent.*—An Irish laborer, æt. 21 years, had been affected with the ordinary symptoms of phthisis for nine months; the last three months were passed in the hospital. During this period he presented no symptoms that attracted the least suspicion of disease of the kidneys. For a short time previous to his death, slight œdema of the feet had existed, a symptom not very unusual in the latter stage of phthisis. His death was sudden. He had been up and walking about the room during the evening as well as usual. After retiring to bed, he was heard to breathe with difficulty, and died in an hour or two with slight convulsions.

On *post-mortem examination*, twelve hours after death, the brain was found natural; the lungs were the seat of extensive and advanced tuberculous disease, abscesses existing in both lungs.

The kidneys were both enlarged, the largest weighing 12 oz. 6 dr.; its length was 6¼ inches, its breadth 2½ inches. These organs were congested, firmer than natural, and lobulated. The external coat, on being removed, presented nothing unusual. The external surface of the kidney was smooth, but presented numerous vessels much enlarged: *no granulations*. Internally, the two structures were much more red than common. The cortical portion appeared more coarse than natural, and so much thicker than usual, as to encroach very much upon the tubular portions, and to contract and deform them in a striking manner. On a minute examination, no granulations could be discovered internally; the pelves were natural, as also the bladder, which contained about half an ounce of reddish, turbid urine, yielding undoubted evidence of albumen by heat and nitric acid.

The unexpected condition of the kidneys in the above case, and its exact correspondence with what is noticed in other cases of Bright's Disease, notwithstanding the absence of granulations, a condition by no means regarded, at the present time, as necessary to the disease, led me to test the small quantity of urine found in the bladder, and thus to esta-

blish the true nature of the complication. The small quantity of turbid urine, in connection with the highly-congested state of the kidneys, may serve also to explain the sudden death, by rendering probable a sudden suppression of the urinary secretion from congestion, and a poisoning of the nervous system, a circumstance not unusual. The existence of convulsions before death, and the entire absence of any other cause of sudden death, on a careful examination of the lungs and other organs, seems to me to confirm this view of the case. The absence of any apparent lesion of the brain, so far from weakening this opinion, tends to confirm it; for it has been repeatedly noticed in Bright's Disease, that the most marked cerebral symptoms, as convulsions and coma, may exist towards the close of life, and yet no organic lesion of the brain be discovered after death. This has led to the inference that the functions of this organ have been deranged, overwhelmed, or, to use a stronger expression, *poisoned*, by the excess of urea in the blood, or of some other noxious agent which the diseased kidneys have failed to separate from it.

Case III.—*Bright's Disease occurring in the course of phthisis, and terminating fatally, by the supervention of a double pneumonia.*—John Chapman, æt. 37 years, native of Ireland, bath-keeper, was admitted to the New York Hospital, February 20th. His constitution is good, and he has generally enjoyed good health, although his habits are irregular; has had gonorrhœa, but not syphilis. For four years past he has been subject to cough, which, however, has not been constant. Three months ago he was seized with a hard, dry cough, dyspnœa, and with hoarseness, followed by soreness in the throat and difficulty in swallowing; no hemoptysis, no pain in the chest; emaciation and loss of strength moderate; no disposition to night sweats; pulse 120, regular, sharp. Dullness on percussion under both clavicles, most marked under left; respiration rude, with mucous rattle at the summit of the left lung; feeble at the summit of the right; natural at the base of both lungs.

The patient, being affected with phthisis, was not regarded as a proper object for the hospital; but, being reluctant to leave, he was allowed to remain, although not as under treatment. About the first of March, ten days after admission, his face became œdematous; in four or five days this was followed by œdema of both feet, and by ascites; increased dyspnœa; cough more troublesome. March 9th, when the dropsical symptoms first attracted attention, the œdema of the lower extremities was considerable, extending up to the knees, the abdomen prominent and fluctuating, the face pale, swollen, œdematous; no effusion into the cavities of the chest; pulse 88, regular; skin warm. On being questioned closely, no exciting cause of the dropsy could be discovered; the patient had remained quiet in the ward on simple diet, without exposure, and, at the time of the attack, was as well as usual and in good spirits. The heart, on examination, gave no evidence of disease. Urine of a high red color, turbid, with a flocculent deposit, not materially altered since the dropsy commenced. Coagulates abundantly by the application of heat and nitric acid. No pain or tenderness in the region of the kidneys. States that seven years ago he had some renal difficulty, from which he has since been entirely free, but no dropsy until the present attack. Bowels loose; no vomiting; head not affected.

The patient, being regarded as affected with the acute form of Bright's Disease, was ordered an active antiphlogistic treatment.

March 10.—Patient lost from the arm yesterday about ℥ xxx. of blood, without faintness: blood highly buffed and cupped; also ℥xvi. this morning, by cups over the loins. Pulse 92, soft; skin cool; tongue thinly coated white; urine muddy, of a dark cherry-red color, not diminished in quantity. Warm bath; low diet.

March 11.—Dropsy increased except in the face, which is less swollen; was kept awake last night by his cough, otherwise feels easier. Pulse 88, soft, regular; slight thirst; urine still turbid and high-colored, resembling beer in appearance: two pints in twenty-four hours; no pain or tenderness over kidneys. Cups to loins.

March 12.—Dropsy diminished except in abdomen. Eight stools, thin, watery, without tenesmus; has had a diarrhœa for four or five days, following a purgative. Skin dry, as it has been for a year past; tongue moist; pulse 96, soft, feeble. Urine turbid, of an olive-green tint; tested by heat, it yielded much less albumen than at first; none by nitric acid; quantity as yesterday. Camphor grs. iii. Pulv. Dover. grs. vi., every six hours. Warm bath.

March 19.—The antiphlogistic treatment, viz., cups to loins every two or three days, the frequent use of the warm bath, Dover's powder, and low diet, has increased the comfort of the patient, but has not diminished the dropsy; on the contrary, this symptom has rather become aggravated. Pulse 100, soft, regular; skin cool; urine, two pints in twenty-four hours. Supertart. Potass ℥i.; Tinc. Digitalis gutt. xx., every four hours.

March 21.—Dropsy increased, legs much swollen, and tender on pressure; anasarca extending to nates and to the abdomen; none in upper extremities. Eight stools, thin, watery, without griping; skin natural; pulse 88, soft; no pain in the loins. Kept awake all night by a dry, distressing cough. Add Dover's powder, grs. x. at night.

March 22.—Urine, four pints in twenty-four hours, of a dark brown, smoky appearance. An eight-ounce vial filled with it, and treated with nitric acid until no more flocculi of albumen are formed, presents, after standing twenty-four hours, a sediment of albumen one-third of an inch in thickness. Thirst considerable; three watery stools; pulse 120; skin cool.

March 26.—Complains of a tired sensation over kidneys, but no tenderness.

March 30.—Dropsical symptoms continue the same; no uneasiness in the region of the kidneys; urine of a reddish tint, deposits, on standing, a bright pink flocculent sediment, resembling coagula of blood; two pints in twenty-four hours. Pulse 90, full, no fever; appetite good. Omit the Supertart. of Potass and Digitalis, which, on the 26th, had induced pain in the epigastrium, and nausea, with dizziness. Apply cups to the loins.

April 10.—Since the diuretics have been suspended, and without any other treatment than Dover's powder, the urine has decidedly increased in quantity, the patient passing from three to four pints in twenty-four hours. April 2, the specific gravity of the urine was first ascertained; it was found to be much below the natural standard, the patient passing about two and a half pints of urine, slightly acid, in twenty-four hours. Decoc. Apocyni. Canab. with Pulv. Dover, grs. x. at night.

April 17.—The decoc. of apocynum, continued two days, induced great nausea, it was therefore omitted. Yesterday a profuse watery

diarrhœa came on without apparent cause, without pain; on the contrary, with a feeling of relief. Pil. Opii. gr. i.; ter in die.

April 20.—Diarrhœa continues. Erysipelas has appeared on the face. Has been using, since the night before last, Persesquinitrat. ferri ℥i.; Aq. ℥i.; M. ℥i.; ter in die.

April 21.—Erysipelas spreading over face; respiration hurried and much oppressed, thirty-six in a minute; no pain in chest; skin warmer than natural; pulse 128, quick, rather small, regular. Diarrhœa continues, dropsy of abdomen diminished, œdema of legs as usual. Speaks in a low whisper. Lot. Acet. plumb. et opii to face.

April 22.—Oppression in breathing much increased, orthopnœa; urine not diminished in quantity. Death ensued during the night, without coma or convulsions.

Post-mortem examination, eleven hours after death. Brain healthy: moderate subarachnoid effusion. Heart and pericardium healthy.

Both lungs presented numerous tubercles in their different stages. The right lung adhered universally to the chest by old false membranes. Several small recent cavities existed at its summit. The left lung was less affected, although small cavities existed at the summit of this lung also. Pneumonia, in the first and second stages, occupied the lower lobes of both lungs.

In the larynx, the vocal chords were nearly destroyed by ulceration, which had penetrated into and disorganized the ventricles. A linear superficial ulcer existed on each side of the free edge of the epiglottis, laying bare the cartilage; the upper and lower surfaces of the epiglottis were healthy; trachea and bronchi red from congestion.

The cavity of the peritoneum contained about a gallon of straw-colored serum; its surface presented a considerable number of tubercles mixed with granulations of coagulable lymph. The liver appeared rather pale and granulated. The mucous membrane of the intestines, somewhat injected, presented a few ulcers at the lower portion of the ileum. Stomach, large intestines, healthy.

The kidneys were rather above the natural size and pale, rather flabby, but of their usual consistence. The external coat was healthy, separating easily from the parts beneath, except at one portion, where it was closely adherent. The surface of the kidney, as viewed after the external coat was removed, appeared of a pale yellow color, mottled with numerous small but distinct bright red spots, and small veins branching and interlacing with each other. Internally, the organ presented the same general appearance; the cortical substance being of a pale yellow color, mottled with small red spots, and possessing its usual thickness. The tubuli were not deformed, but were dotted with red points, like the cortical portion. *No granulations were found.* In one spot, a few small deposits of lymph were noticed. The pelves were natural.

These three fatal cases, although insufficient to illustrate all the varieties of morbid change in structure that occur in this disease, may yet serve to indicate some important points in its pathology. In every case the kidneys were evidently the seat of disease, but in only one case (Burke) were granulations observed. In this case, the disease had gone on to its natural termination, after having existed at least nine months. In the two remaining fatal cases, in which the disease existed as a complication of phthisis, the duration was probably very short; in one case (Chapman) not more than seven weeks. These facts confirm the opinion

now generally admitted, that the granulations, which form so striking a feature in most of the advanced cases of the disease, are not essential to its existence, but are to be regarded as among the secondary changes that attend its progress. Dr. Graves, of Dublin, has advanced the very ingenious idea that these granulations are portions of albumen that have been arrested and deposited in the structure of the kidney. But the fact that, even in the most marked cases, albumen is not found existing in a separated state in the urine, as well as the co-existence of a similar condition of the liver (Burke, Chapman), will not allow us to attach much value to this opinion. It is by studying the cases that terminate early in their progress that we should expect to arrive at the most correct notions of its pathology. In many of these cases (Chapman) we find the kidneys the seat of congestion, and the cortical substance not only more vascular, but increased in thickness. This has led to the opinion that inflammation is the first step in the chain of morbid actions, and has induced Rayer to call the disease Albuminous Nephritis; a peculiar inflammation, as this author is obliged to admit, since, in simple nephritis, the symptoms, &c., are quite different. Dr. Prout, however, in the late edition of his excellent work on diseases of the kidney, denies entirely the correctness of this view, and regards a degeneration of the kidney, independent of inflammation, as the true cause of the disease, looking upon the congestion of the kidney as an accidental circumstance which may occur or not. Indeed, he regards a deficiency of blood in the kidney as quite as likely to attend the early stage, admitting, however, as in the form following scarlatina, an inflammatory condition of the kidneys and of the general system as an occasional cause. It would appear, then, that in this disease, as well as in other grave affections of the kidneys, diabetes, for instance, no constant appreciable organic change has yet been discovered to enable us to fix with precision its true nature, an ignorance which will be the more lamented when we consider the opposite character and inefficacy of the present modes of treatment.

Case IV.—*Bright's Disease, treated by Diuretics.*—Elisha Lynch, seaman, native of Maryland, æt. 24 years, was admitted to the New York Hospital, January 27th. He had generally enjoyed good health, with the exception of an intermittent fever every autumn for several years past. Last autumn he contracted the same disease at Wilmington, North Carolina, but was entirely cured, and remained well for six weeks before his present attack. About a week before last Christmas he began to notice a swelling of the feet, which continued to increase. Two weeks ago his abdomen began to enlarge, accompanied with occasional palpitations, vomiting, and a disposition to cough.

At the time of admission, the most marked general anasarca existed; no portion of the external cellular tissue was free from it. It was firm, pitting but little, and rather tender. Abdomen much distended and fluctuating; countenance pale, much swollen; heart natural; mucous rattle over the posterior portion of the lungs; urine of a smoky appearance, acid, depositing albumen abundantly by heat and by nitric acid; rises several times at night to pass his urine. States that he was in the hospital at New Orleans last winter for what was supposed to be lumbago, and that, a few days before the dropsy commenced, he had slight pain in the back, which lasted only a week. Now complains only of slight tenderness on pressure over the right kidney.

January 29.—Urine one and a half pints in quantity yesterday. Supertart. Potass. ℥ijs., Tr. Digitalis gutt. xv., every six hours. Soup diet.

February 5.—The supertart. potass., even when the dose was diminished one-half, produced pain in abdomen, griping, and occasionally vomiting; the free purging that attended affording no relief to the dropsical symptoms; urine very muddy; specific gravity less than natural. Decoc. Apocyni Canab., a wine-glass every six hours.

March 21.—The patient has continued to use the apocynum regularly up to the present time. It has acted regularly upon the bowels, producing from four to six watery evacuations in twenty-four hours, and usually without pain or griping. But it has had no material influence in diminishing the dropsical effusion, or by increasing, or, in any way, improving the urinary secretion. The patient has, at times, been much annoyed by the accompanying bronchitis, also with dull pain in the head and dizziness. Towards the latter end of February, these cerebral symptoms were so marked, and the quantity of urine so small, that an attack of coma was apprehended, and the patient was cupped upon the temples; he was also occasionally relieved by epistaxis. The skin being habitually dry, the warm bath was freely used, but without benefit. The region of the kidneys continued free from pain or tenderness on pressure. The diet was simple, consisting of soup, milk, &c. To-day the following is his condition. Passes comfortable nights, being obliged to rise twice to pass his water; urine of a smoky-brown tint, about two pints in twenty-four hours; deposits albumen freely with nitric acid; œdema extends over every portion of the surface except the shoulders and arms; abdomen full and fluctuating; complains, for the first time, of some tenderness over the left kidney; states that a fortnight ago he felt some uneasiness there; appetite good; no thirst or nausea; tongue natural; three or four stools in twenty-four hours, not watery; pulse 92, soft, rather feeble, regular; skin dry; some cough, with trifling expectoration; mucous rattle gone. Omit the Apoc. Canab.

May 11.—The patient discontinued all remedies until April 1, when he came in charge of my colleague, Dr. Griscom; his dropsical symptoms were then very marked and troublesome, and he passed only about one pint of urine in twenty-four hours. He commenced the use of calomel gr. ss., Pulv. Scill. grs. ii., three times a day, which soon induced slight tenderness of the gums, but no relief followed. The respiration was much oppressed from the accumulation of fluid in the abdomen and from an increase of the bronchitis; the pain and dizziness in the head, with ringing in the ears, were again present; the urine continuing much less than natural, one and a half pints in twenty-four hours. On the 6th, he was tapped, and three gallons of fluid drawn off with great relief. On the 11th, he commenced the use of Corros. Sublim. gr. i., Tinc. Cinchon. ℥i., a teaspoonful every four hours, combined with an expectorant mixture. This remedy acted decidedly as a diuretic, and has almost entirely removed the dropsical effusion, slight œdema of the feet only existing at the present time. The patient is pale and his countenance morbid, but he is free from all pain, except an uneasiness over the region of the kidneys occasionally, and some slight tenderness. He eats and sleeps well, and is active; is nearly free from cough, and his skin has become moist. The urine, however, has not proportionally improved; it is much increased in quantity, about four pints in twenty-four

hours, but still rather smoky and pale, of a specific gravity much less than natural, less even than soon after his admission, and still depositing albumen freely. He continues the Corros. Sub. and Tr. Cinchon., a teaspoonful every two hours, without affecting the gums.

May 30.—Discharged entirely free from dropsical symptoms and much improved in appearance, but with no improvement in the urine.

Case V.—*Bright's Disease, treated by Diuretics.*—Nathan Beckwell, colored seaman, æt. 28 years, entered the New York Hospital, January 30th, 1844. The patient is a man of good constitution, in the habit of indulging moderately in the use of spirits, and has usually enjoyed good health until about two years since. A year ago, he contracted rheumatism which continued two or three months. During the past summer he suffered from headache, night sweats, attended with emaciation. About two months ago, he contracted a cough followed by dyspnœa, palpitation, indigestion, and occasional diarrhœa. A short time previous to the cough he noticed that his ankles were swollen, attended with pain; the swelling afterwards extending to the arms and face, with irritability of the bladder, compelling him to rise five or six times during the night (has been for a long time accustomed to rise once or twice during the night). He now complains of anasarca of the whole lower extremities, which are painful and tender to the touch, with some effusion into the peritoneal cavity, but without swelling of the face or upper extremities. Pulse 90, soft; skin dry and cool; tongue slightly coated, moist; thirst; appetite and digestion good; bowels rather loose; heart natural; no effusion into the chest; dry cough, with some soreness of the chest; no tenderness on pressure over the region of the kidneys; urine increased in quantity, five pints in twenty-four hours, slightly acid; deposits albumen abundantly by heat and by nitric acid; is obliged to rise frequently to urinate; supertart. potass. 3 ii., tinc. digit. gutt. xv., ter in die.

March 9th.—The medicines have induced little or no purging, but materially increased the quantity of urine, this being at one time as great as twelve pints in twenty-four hours (February 19th), attended with a marked improvement in the dropsical symptoms, the swelling in the abdomen entirely subsiding, and the anasarca of the lower extremities extending only to the knees. The cough also disappeared, the skin continuing cool and rather dry; no tenderness over kidneys; appetite moderate; thirst. The urine, however, still continuing to deposit albumen abundantly, to be slightly acid, or nearly neutral at times, clear, resembling, in color, new cider. For the last ten days, however, the diuretic effort has diminished (five pints in twenty-four hours), although the digitalis occasionally induced nausea; the dropsical symptoms have increased. Omit diuretics—elaterium gr. ¼, every four hours.

March 21st.—The elaterium in small doses induced purging, but with griping and vomiting; it was therefore omitted. The decoc. apocyni also disordered the stomach and could not be continued. The diuretic decoction rather increased the quantity of urine and diminished the dropsy, but not materially. He now has good appetite and digestion; some thirst; bowels regular; no cough; pulse 92, soft; skin cool and dry; feet and legs œdematous, the swelling extending slightly up the thighs to nates and back; rises three times at night to urinate; urine about four pints in twenty-four hours, clear, resembling new cider; still depositing albumen freely; no tenderness over the kidneys.

When I ceased attending him, April 1st, no further improvement had taken place; the urine of a much less specific gravity than natural, was in all respects as above described; the dropsical symptoms continuing. His feelings, generally, however, had so much improved that he requested a discharge, April 19th.

Case VI.—*Bright's Disease, treated by Purgatives and by Diuretics.*—Peter Horn, æt. 33 years, born in Sweden, seaman, of good constitution, entered the New York Hospital, November 15th, 1843. He arrived from Hamburg four months ago, where he had been six weeks in the hospital with chronic rheumatism, for which he was salivated. He has twice been in the Sailor's Retreat with the same disease. He complains now of rheumatic pain in the shoulders and back, also in the inferior extremities, which are *œdematous;* tongue coated, brown in the centre; pulse natural; bowels regular; both hypochondria tender on pressure; complains of dyspnœa in exertion. Sol. hyd. potass., which relieved the rheumatic pains somewhat. He was afterwards, December 22d, ordered Pulv. purgans.

January 7th.—The patient was, for the first time, carefully examined by me since my attendance. His rheumatism had nearly left him. He still complained of an aching sensation, with deep-seated tenderness, on pressure, over the loins. His pulse was calm and soft; skin moist; tongue slightly coated; digestion good. His urine was about two quarts in twenty-four hours, rather smoky in appearance, acid, coagulating by heat and nitric acid. He was still using the Pulv. purgans (jalap and supertart. potass.) in purgative doses.

January 18th.—The Pulv. purgans has ceased to purge him; thinks the swelling of the legs has somewhat diminished. Ordered elaterium gr. $\frac{1}{4}$, bis in die.

January 27th.—The elaterium, although it produced a favorable cathartic effect on the bowels, did not seem to exert any material influence on the dropsy, although the quantity of urine was perhaps rather diminished, the quantity of albumen continuing about the same. Appetite good; digestion easy; pulse natural. Omit the elaterium. Commence supertart. potass. ℥ij., tinc. digitalis gutt. xv., ter in die.

February 11th.—Remedies have produced slight purging with griping. Urine about the same in quantity. Complains of increased weakness in loins, with some tenderness on pressure; also of some dizziness; rises two or three times at night to pass his urine; appetite good; no thirst; pulse natural. Omit remedies.

Urine examined carefully the next day, was found as follows: two quarts in twenty-four hours, smoky in appearance, alkaline, deposits albumen abundantly by nitric acid, but none by heat until acidulated by acetic acid. Ordered corros. sublim. gr. $\frac{1}{8}$, tr. cinchonæ ℥i., ter in die, to be gradually increased.

February 28th.—Urine continues about the same; some pain and tenderness in the loins; pulse 80, soft; skin moist, as before. Continue medicine.

March 31st.—At this time I ceased to attend him. His urine had diminished in quantity, two or three pints in twenty-four hours; he had ceased to rise at night to pass it; its color had much improved, having lost its smoky appearance, and had become acid; the œdema of the legs had diminished, but still existed slightly; the countenance and complex-

ion had improved; the pulse was nearly natural; the appetite good; the uneasiness about the kidneys trifling, but the specific gravity of the urine was much less than the natural, less even than when the general symptoms were more marked; and the quantity of albuminous deposit as great as ever (an eight ounce vial filled with urine and treated with nitric acid until no more flocculi are thrown down, presents, on standing twenty-four hours, a deposit occupying one quarter of the vial). Has continued the corrosive sublimate and tr. of cinchona.

May 11th.—The patient came under my care again. He now complains of constant dull pain over kidneys, increased by stooping, but of no tenderness on pressure; his appetite is moderate; bowels occasionally constipated; pulse natural, no fever; is rather losing strength; slight œdema of the feet; urine natural in quantity, of an amber color, a little smoky, acid; still deposits albumen abundantly; specific gravity less than natural, as at the last examination. Has continued the tr. cinchona and corrosive sublimate.

Case VII.—*Bright's Disease, treated by Purgatives.*—G. W. Jennings, colored seaman, born in New Jersey, æt. 37 years, of rather delicate and slender frame, entered the New York Hospital, December 27th, 1843. Early in August last, he was attacked with rheumatism, which continued to affect different joints in succession, for about two months, when his feet were observed to swell, the swelling rapidly extending up the legs to the knees, accompanied by a feeling of weakness and stiffness in the loins. The swelling was reduced in about a week by the use of liniments, but returned again in two weeks. At this time, he complained of a dull fixed pain in the loins; since this time the swelling has never left the lower extremities. About a month ago, the swelling being considerable, and the pain in the loins increased, he first observed that his urine was increased in quantity. Since this time, his urine has gradually increased in quantity, the pain in the loins become more marked, and the swelling extended further up the lower extremities. He now passes about eight pints of rather high colored urine in twenty-four hours; the legs are œdematous; and there is a dull gnawing pain in the lumbar region; pulse 96. The urine deposits albumen by nitric acid, *but not by heat*, owing probably to its being alkaline. Sol. iod. potass. (5 grs. every six hours).

This patient was treated by purgatives. He was ordered Pulv. purgans (jalap and supertart. potass.), and afterward elaterium, but neither of these remedies operating favorably, he was ordered, January 28th, a purge of senna and salts, every second day, which usually induced three or four stools, without pain. Under this treatment the swelling gradually diminished, but without any decided change in the urine, except that instead of being alkaline, as noticed soon after his admission, it had become acid. About the 1st of March the urine was observed to diminish in quantity to four or five pints in twenty-four hours, and to present a clear amber color, still depositing albumen by heat and nitric acid; no tenderness or pain in the loins: the senna and salts producing three or four stools. His feelings, generally, were rather improved, but he complained of increased weakness; pulse 116, soft; skin cool, rather dry; no thirst. At this time, he complained of pain shooting around the loins to the testicles, which became enlarged and painful, for which he was confined to his bed, and tobacco poultices applied. At the end of

March the quantity of urine continued to be four or five pints in twenty-four hours, acid, specific gravity much less than natural, and still depositing albumen abundantly by heat and by nitric acid. The inflammation of the testicles had nearly subsided.

May 14*th.*—Appetite and digestion good, rather gaining strength; no pain, but slight tenderness over the region of the kidneys; œdema of the feet about as before; pulse natural, soft; urine clear and natural in appearance; three pints in twenty-four hours; decidedly acid; specific gravity much less than natural, rather less than a month ago; still deposits albumen as freely as ever both by heat and by nitric acid. Has continued to be purged moderately every other day by the senna and salts. Diet, soup, milk, &c.

Case VIII.—*Bright's Disease, Enlargement of the Heart, treated by Diuretics and Purgatives.*—Charles Matthews, æt. 28 years, waiter, native of Ireland, was admitted into the New York Hospital, March 23d. The patient is of good constitution, but formerly intemperate. Three or four years ago he had suffered from diarrhœa for six months, which was then cured. For three years has suffered from palpitations, and for two years from dyspnœa. He has also suffered from pain over the precordial region, for which an issue was applied, but without relief. About three months ago his feet swelled, soon extending to the abdomen, and afterwards to the face.

He now has œdema of the lower extremities, extending, slightly, to the abdomen and nates; œdema also of the face; slight effusion into the peritoneal cavity; pulse 96, regular, of moderate strength; respiration somewhat oppressed; tongue natural; apex of the heart strikes between the sixth and seventh ribs below and a little outside the nipple; increased dullness on percussion over the precordial region; sounds of heart natural; impulse moderate; urine deposits albumen freely by heat and by nitric acid. States that, in November last, he had pain in the right lumbar region, increased by walking and stooping, also by the sitting posture, which continued about two weeks, and has returned occasionally since, and is not affected by motion; tenderness, on pressure, anteriorly over the kidneys, but none posteriorly. States that, six weeks ago, he was obliged to rise and urinate at night, but that this has ceased. Elaterium gr. ¼, ter in die.

This patient passed from my care, April 1st. The elaterium had operated freely and favorably upon the bowels, reducing the dropsical effusion; the urine was about natural in quantity, slightly acid, rather high colored, of diminished specific gravity, depositing albumen.

May 18*th.*—The patient has been using, since last report, elaterium, at intervals; also the diurectic decoction, but with no very marked effect on the dropsy. Indeed, on careful examination yesterday, it appeared about the same as at the time of admission. The urine is now over three pints in twenty-four hours, rather less clear than natural, but not smoky, amber color; of diminished specific gravity, as when first examined; and deposits albumen freely by heat and nitric acid; no pain or tenderness over kidneys; not obliged to rise at night to urinate; no thirst; appetite moderate; bowels regular; pulse accelerated, rather feeble; heart without increased impulse or abnormal sound, but apex striking too far to the left; very little complaint of dyspnœa or palpitation.

In reviewing the symptoms detailed in the foregoing cases, none are more striking and constant than the dropsical effusion. It is this that usually brings the patient to the hospital, and which attracts the chief attention of the physician. In some of the cases (Lynch, Beckwell, Chapman), it was excessive, occupying the subcutaneous cellular tissue generally, as well as the cavity of the peritoneum, but in no case was its existence detected in any other of the serous cavities; while in other cases (Jennings, Horn) it was very trifling in amount, affecting the lower extremities only to a moderate degree, and accompanied by tenderness, or not, according to its degree. If the story of the patients can be believed, the effusion first occurred in the feet, as in dropsy connected with disease of the heart, and, contrary to the opinion of Rayer, who states that it usually begins in the face. It should, however, be remarked, that in the only case (Chapman) where the dropsical symptoms developed themselves in the hospital, and where their progress could be carefully watched, the face was first affected, while in mild and advanced cases there can be no doubt that the effusion is usually confined to the lower extremities.

In none of the cases, except that of Chapman, was there any evidence of inflammatory action as exhibited either by the general or local symptoms. The pulse, indeed, was usually accelerated, but soft and feeble; the skin cool. The patients did not complain of pain over the regions of the kidneys, although pressure not unfrequently revealed tenderness there. The impression one would naturally derive from watching the condition and progress of these cases, is, that the vital powers are slowly becoming exhausted under the influence of some degenerating cause with which inflammation and irritation have nothing to do.

The condition of the urine was carefully examined in all the cases. As a general rule, it rather exceeded the standard of health (two and a half pints), but unless under the influence of diuretics, this difference was not marked. In one case (Lynch) it fell below the natural standard. Its color varied, in different cases, being sometimes higher, sometimes lower than in health. But it uniformly presented one appearance, which has appeared to me characteristic, and which has enabled me, in more cases than one, to predict the existence of albumen. This is a *smoky appearance* which, when very marked, gives the urine a muddy look. Even when the urine is paler than natural, this smoky vapor, as it were, diffused through it, prevents the bottom of the vessel from being distinctly seen as in healthy urine. This appearance is, perhaps, produced by partially dissolved mucus or albumen, which, however, does not, after standing, assume the appearance of a sediment. In only one case (Chapman) was a distinct sediment of any kind noticed in the urine. The secretion was usually acid, as tested by litmus paper, although rather less so than in health. In two cases (Jennings, Horn) it was temporarily alkaline. Its specific gravity was uniformly less than in health, and it invariably deposited albumen abundantly by heat and by nitric acid. In the cases where the urine was alkaline, it did not deposit albumen by heat until it was acidulated by acetic acid; but after it had regained its natural acidity, in the progress of the case, the usual effects from heat were noticed. The method employed to ascertain the quantity of albumen was simple, and sufficient for practical purposes. An eight ounce vial was filled with the urine; nitric acid was then added until no more deposit took place; the whole was then allowed to stand twenty-four

hours, and the thickness of the sediment measured. In all these cases, whatever were the remedies used, and whatever their effects upon the appearance and quantity of the urinary secretion, and upon the dropsical and other symptoms, *the specific gravity of the urine uniformly remained low, and the quantity of albumen was undiminished.*

The causes that produced the disease, in these cases, although carefully searched for, completely escaped observation. Several of the patients were sailors, and had been exposed to the hardships of that mode of life. Rheumatism not unfrequently preceded the attack, or co-existed with it, but appeared to have no necessary connection with it. Only one patient confessed himself intemperate in his habits, and this had been abandoned many years before the attack. In two instances the disease developed itself in the course of tubercular phthisis, and in one existed with organic disease of the heart. Even the exciting causes of the attack equally escaped observation. That frequent cause, according to Dr. Bright, exposure to cold by lying on a damp surface, was not found to exist. Indeed, in the case of Chapman, the patient was unusually protected from all the supposed exciting causes of the disease, being attacked while in the hospital, and not under treatment of any kind, and well protected from every kind of physical exposure.

In the treatment no uniform plan was adopted. The principal indication seemed to be the removal of the dropsical effusion. Different methods, as recommended by the best authorities, were resorted to, and, it must be confessed, with very indifferent success. In the chronic cases, which embraced all but one, the purgative plan, administering such purgatives as, by inducing free watery evacuations, are frequently beneficial in other forms of dropsy, as elaterium, supertart. of potass., &c., was adopted, but was usually soon abandoned, from its creating too much intestinal irritation. Diuretics were also freely used, but with no better success; for, although they sometimes increased the quantity of urine, and diminished the dropsical effusion, yet these effects were neither marked nor lasting. In a single case, however (Lynch), the oxymuriate of mercury, in alterative doses, acting powerfully as a diuretic, carried off the dropsy, after other medicines, both diuretic and purgative, had failed; improving, at the same time, in the most marked manner, the general health of the patient, although failing entirely to produce those changes in the condition of the urine, viz., increase in the specific gravity, and a diminution in the quantity of albumen, without which no real progress towards a cure can have taken place. Diaphoretics, as Dover's powder, the warm bath, were used in combination with other remedies, but without sensible good effects. Cupping to the loins was also used when tenderness or pain existed there. The diet was mild, and such as could be easily digested, and varied according to the condition of the patient. In the single acute case (Chapman), in which the presence of inflammatory symptoms seemed to indicate an antiphlogistic treatment, general and local bleeding, warm bathing, diaphoretics, with low diet, were actively resorted to, but with no marked good effects.

Case I.—*Diabetes, relieved by animal diet and phosphate of Iron.*—William Sweetser, shoemaker, æt. 31 years, native of Massachusetts, entered the New York Hospital, December 1, 1843. He stated that he had habitually enjoyed good health, and had been temperate in his habits

except in the use of tobacco. For two years, he had complained of a sensation of weakness in the lumbar region, and even before that period, for five or six years, he had observed occasional pain in this region on any sudden exertion of the part, as when going down a flight of steps with too little care. During this time, however, he had observed no disturbance in the urinary secretion. In January last, he began to notice that it was increased in quantity, and that he was obliged to rise at night to void it. During the following spring, after having for some time passed five pints in twenty-four hours, he thinks that it returned to about its natural quantity. In July last, however, it began again to increase, and has continued steadily to do so until the time of his admission, amounting to twenty-three pints of pale straw-colored urine in twenty-four hours. The appetite and thirst have become excessive, the patient drinking twenty-two pints of water in twenty-four hours. At the same time, the skin was rather dry, the tongue clean and moist, the bowels costive, the pulse 84, regular, full, and of moderate force; his strength not much impaired.

The patient had taken no medicine up to the time of his admission. He was restricted in the quantity of his drink, was ordered animal food exclusively, or nearly so, the use of the vapor bath, and the phosphate of iron, grs. viii., ter in die.

Under this treatment, the urine rapidly and steadily diminished in quantity. The patient, at times, however, complains of pain, dizziness, and confusion in the head, being rather disposed to despondency; with an appetite still very great, but growing less voracious; the bowels alternately costive and loose, but with a skin more moist and perspirable than formerly.

On the first of January, the patient came under my care. At this time he was passing about seven and a half pints of urine in the twenty-four hours. His appetite was still great, his thirst much more under his control, the patient drinking seven and a half to eight pints in twenty-four hours. His countenance was rather pale, but not morbid, and exhibiting no marked traces of irritability or of despondency. Indeed, his general feelings had much improved, his strength was good, and his ability to sleep at night not much impaired. No œdema noticed; no venereal appetite; involuntary nocturnal emissions. His urine was sweet to the taste, clear, of a pale straw color, leaving much saccharine matter on boiling, fermenting with yeast, of increased specific gravity, acid, depositing albumen slightly by heat and nitric acid; slight tenderness over kidneys on pressure.

No material change was made in the treatment of the case, except to increase gradually the phosphate of iron, of which he was using grs. x., ter in die. He also had commenced, a little before this time, the use of Dover's powders, grs. x., at bed-time. He was allowed also rather more farinaceous food, the strict animal diet having become rather disgusting to him.

At the beginning of February, a month later, the urine was reduced to five pints in the twenty-four hours, and the phosphate of iron carried to ℥ ss., ter in die. An attempt to carry the medicine above this dose produced a dull pain in the stomach and dizziness; it was not, therefore, increased. The vapor bath appearing to weaken him, it was omitted. The patient, during this time, continued to improve in his general health; his skin became soft, tongue clean, appetite still rather craving, digestion

good, thirst diminished, strength good, pulse 84; he gained flesh. No tenderness on pressure over the kidneys, or pain, but he complained of a sensation of weakness in the lumbar region after sitting for a time, which was relieved by walking.

From this time up to the time of his discharge the same treatment was steadily continued, but no further improvement took place, the urine continuing to be passed in about the same quantity, viz., five pints in twenty-four hours. It was discovered, however, that he was by no means attentive to the restrictions that had been placed upon his diet, using every day large quantities of bread, which he obtained from the table. There was reason to suppose, also, that he indulged in other improper articles of food, and it is probable that he drank all that his thirst craved. He was discharged March 6, much improved certainly, but by no means cured.

Case II.—*Diabetes, relieved by Animal Diet and Opium.*—A. S. Mulford, æt. 28 years, native of New Jersey, Coach-maker, entered the New York Hospital March 28th. The patient is a man of good constitution and of regular habits. His family not predisposed to diseases of the kidneys; has never had venereal disease or taken mercury. Has used tobacco moderately. About five months ago, he began to notice that his urine was increased a good deal in quantity, and on tasting it, at the suggestion of a friend, he found that it was sweet. At this time, the general health was unimpaired, and the functions of the other organs were not sensibly affected. About a month after this, however, he noticed a craving appetite for food, with great thirst; since his attack he has lost much flesh and strength.

Countenance pale, no pain in head, dizziness, or ringing in the ears; eye-sight and hearing unimpaired; does not sleep well, being disposed to wander; answers questions slowly; memory impaired; complains of numbness in the right arm, with coldness, and a pricking sensation in right leg, both limbs being affected at the same time and only recently; tongue clean and smooth; appetite and thirst excessive; digestion easy generally, although occasional nausea; thinks animal food agrees best with him; abdomen free from tenderness or swelling; bowels rather costive. Complains of a tired sensation and soreness in loins, but of no tenderness on pressure; usually rises twice at night to urinate. Phymosis; meatus urinarius red; all inclination for women has left him; involuntary discharges of semen. No cough, or other pectoral symptoms. Skin harsh and dry; cuticle disposed to exfoliate; no œdema of feet. Pulse 96, soft and regular.

March 29.—Has drunk about 2 pints of fluid since yesterday; urine 3 pints in quantity, of natural color, clear, acid; no albumen; states that he can increase his urine to any amount by indulging his thirst. After boiling the urine leaves an abundant sediment like molasses, which the patient states is saltish; urine ferments readily with yeast. Ordered animal food, with a small quantity of stale bread; 2 pints of fluid; vapor bath every other day.

April 1.—The patient passed from my charge into that of my colleague, Dr. Griscom; at this time he was passing 6 pints of urine per diem. Ordered, opium gr. 1, ter in die.

May 1.—The patient has continued the above treatment up to the present time; is much improved. The appetite and thirst are now quite

moderate; the strength and general health improved; the urine about natural in quantity, 3 pints in twenty-four hours; skin moist, memory improved; occasional diarrhœa. On the 12th April œdema of the feet and legs appeared, which continues. Omit opium. Phosphat. ferri, grs 10, ter in die.

May 21.—Continued the phosph. ferri only a few days; the diarrhœa, which had occurred occasionally before, becoming more urgent, but not severe, and free from pain and griping. For this he was ordered argenti. nit., grs ¼, with opium; the diarrhœa has now nearly left him; the œdema of the feet has also gone. He now expresses himself quite as well as ever, and thinks that he could return to his business; his aspect is much improved; his strength is restored and he has gained 15 or more pounds of flesh. The skin is soft and moist, with rather a tendency to perspiration; pulse 108, soft. Appetite natural, digestion easy, thirst moderate; tongue clean and moist. His venereal appetite has returned, and he no longer has involuntary discharges of semen. The region of the kidneys is free from pain, weakness, or uneasiness of any kind; he is seldom obliged to rise at night to urinate. The urine is of a bright amber color, free from sediment, without albumen, but of a specific gravity considerably above the natural standard; above the natural quantity (5 1–2 pints in 24 hours), fermenting with yeast as at the time of admission.

May 35.—Discharged by request.

The two cases detailed above, were both perfectly well marked cases of that formidable disease, diabetes. In both, the symptoms were of considerable duration, yet in neither was the constitution so seriously affected as to preclude the hope of relief. Yet the benefit derived in both cases must be regarded as merely temporary, the urine still continuing to present well marked traces of saccharine matter. In one, traces of albumen existed in the urine. The great difficulty even in hospital practice is to keep up the proper restrictions as to diet, and there can be but little doubt that both these patients will soon relapse into their old habits of indulgence, and that the symptoms will return with all their original intensity.

The cause of this disease, as in most other instances, escaped observation. In one case (Sweetzer) the patient had been in the habit of indulging very freely in the use of tobacco. This circumstance is mentioned because Dr. Prout, whose opportunities of studying this disease have been very great, attributes a good deal of influence to this cause. In the second case, however, no such cause existed.

ART. II.—*Observations illustrating the Dangers incidental to Operations on Hemorrhoides and Prolapsus Ani, with Practical Remarks on the Treatment of these Affections.* By JOHN WATSON, M.D., Surgeon to the New York Hospital.

OPERATIONS upon hemorrhoidal tumors and upon prolapsus of the mucous membrane of the rectum resulting from these, are usually considered as safe as any other class of operations of equal magnitude. Some authors who have written expressly upon these diseases, speak of excision as attended with little danger except from loss of blood; and of the application of ligatures, as attended with no evil consequences whatsoever. The following cases are of themselves sufficient to show that the dangers attending these operations have been too much underrated. I would not be understood to say that fatal consequences resulting from them are very frequent, but I have reason to know that such consequences now and then occur, and are sufficiently frequent to require the serious consideration of every surgeon before resorting either to excision or the application of the ligature.

The instances in which I have witnessed, or have been called upon to perform these operations within the past eight years, both in ordinary and public practice, have been exceedingly numerous; I cannot, without considerable trouble, attempt an exact enumeration of them. But within this period I have known of four fatal cases; one of these after excision, three after the application of ligatures, and not one of them from hemorrhage. Of these fatal cases two occurred within my own personal observation, and two in the practice of others.

CASE I.—Samuel Page, a native of New York, a seaman, aged 32, was admitted into the N. Y. Hospital, May 10th, 1841, with prolapsus ani and some slight symptoms of stricture in the urethra. The patient was in a state of feeble general health; he had long suffered from what he called rheumatism. The symptoms of stricture were of two years' standing, and appeared to have an intimate connection with the disease at the verge of the anus, being always worst when he had any extra irritation about the rectum. He had long been troubled with hemorrhoides, and the state of his general health was, in some degree, the result of occasional loss of blood from these. The prolapsus was slight, but of several years' duration. It involved the mucous membrane, the subjacent cellular tissue somewhat thickened and indurated, and a number of dilated veins filled with coagulated blood beneath; but no portion of the proper muscular coat of the intestine. It projected on either side of the verge of the anus after every evacuation of the bowels, but was easily reduced. It was subject to occasional exacerbations of inflammation, which were peculiarly apt to occur when his bowels were constipated. The patient was much dejected, and was suffering from indigestion.

After his admission, he was put on the use of tonic medicines, and his urethra was examined with a bougie. The stricture readily yielded after one or two applications of lunar caustic by the armed bougie; attention was then directed to the disease of the rectum.

June 4th, at noon, the prolapsus having been fully brought into view by requiring the patient to force it outward after an injection, I passed a curved needle armed with a strong double ligature of saddler's silk, from

within outward, through the base of the protruding mass, on either side of the verge of the anus, the point of the needle passing out at the line of junction between the mucous membrane and the external integuments. After the insertion of the ligature, an incision was made completely around the base of the protrusion externally, so as to encircle the anus; the incisions on either side meeting in front and rear, and passing along the line of juncture already mentioned. The protruding mass on each side was next drawn out as far as possible by means of the forceps; and the ligatures, passing externally in the course of the incisions, were secured upon it in such a way as to divide it into four portions, two on each side; and after drawing the ligatures tightly enough to interrupt the circulation, the protruding mass was excised at a little distance above its base. The rest was then introduced within the anus. An anodyne was administered, and a cloth wet with cold water was placed between the fold of the nates.

The patient suffered considerable pain during the operation, and had subsequently, as is usual even in persons free from disease of the urethra, symptoms of strangury. These, however, soon subsided, after a single introduction of the catheter. The following night he slept comfortably under the influence of an anodyne. During the two following days the patient appeared to be doing well, suffering as little pain as persons commonly do after these operations, and making no complaint except from slight tympanitis, which subsided spontaneously after the discharge of gas from the bowels.

June 7th.—A few hours after the mid-day visit, the patient had a painful evacuation of his bowels, which induced symptoms of exhaustion. His pulse became very feeble, his respiration labored, his skin cold and damp. The anus, which had protruded during the evacuation of the bowels, was again reduced, and a poultice applied to it, and the patient was put on the use of stimulants. Slight re-action ensued. About 6 o'clock in the afternoon symptoms of prostration again occurred, and were now much more alarming, characterized by want of pulse at the wrist, labored respiration, a macerated appearance of the hands, which were wet and cold, the rest of the body bathed in perspiration, frequent vomiting of a grass-green fluid, tympanitis. He died at 8 o'clock.

In the *post-mortem* examination, which was made on the following morning, the lungs were found united to the chest by old adhesions. Cretaceous deposits, some of them very large, existed in the upper part of both lungs, and these deposits gradually changed at their lower portion into a sort of cartilaginous deposit. Numerous small abscesses, filled with grumous blood or bloody pus, were scattered through the substance of both lungs. The heart was apparently healthy, but its left cavities were filled with a large fibrinous concretion. The liver was in a state of incipient granular degeneration. The gall-bladder was filled with the same sort of grass-green fluid that the patient had vomited during the state of collapse. The kidneys were considerably larger than natural. The lining membrane of the pelvis of the kidneys was thickened, granulated, and injected with blood. The bladder was unnaturally large, and its muscular coats were hypertrophied: its mucous coat was also thickened, mottled with patches of sanguineous injection, and studded with smaller spots of ecchymosis. It contained a small quantity of turbid urine. The appearances of stricture in the urethra were merely appreciable, and existed at the membranous portion. The lower portion of the

mucous membrane of the rectum had a light rose hue, as if from recent but not severe, inflammation. The longitudinal veins, extending upward from the sphincter to the distance of two or three inches, were enlarged, but neither tortuous nor abraded. The parts upon which the ligatures had been applied had sloughed off, and the ulcerated surface left by them had so much contracted as to present very trifling traces of disease, and no very marked irregularity. No other morbid appearances were discovered, except, perhaps, a mass of dark and apparently grumous blood in the iliac veins.

This patient's general health had been seriously impaired by protracted disease, not immediately connected with the disease of the rectum, and not appreciated, nor even suspected, at the time of the operation, nor at any time prior to his death. Had the condition of the thoracic and abdominal viscera been suspected, the dread of collapse from the mere shock upon his enfeebled system would have been sufficient to interdict any attempt to cure the prolapsus by recourse to the operation.

The existence of the numerous small abscesses in the lungs might lead us to suspect that the patient died of the effects of phlebitis. These, however, might perhaps properly be referred to mere local inflammation, superinduced in organs already somewhat diseased by the general state of arterial excitement following the operation. Their existence, however, taken in connection with the fibrinous concretion in the heart, the enlargement of the hemorrhoidal veins, and the equivocal appearances noticed in the iliac veins; the vomiting of greenish fluid, and the sudden sinking at the close of the case; give us room to suspect that general phlebitis might have been the immediate cause of the fatal result, although its existence had been so recent as to leave no organic changes on the surface of the large veins throughout the body.

Case II.—On the 6th of June, 1843, I was requested to see Mr. B., a merchant from Kentucky, about 30 years of age, who was suffering from extensive disease of the right elbow and fore arm, and a similar affection of his right ankle, which had occurred suddenly a few days previous, and appeared to be the indirect result of an operation which he had recently undergone for the removal of hemorrhoidal tumors.

Just before the operation he had arrived here on business, and, with the exception of the hemorrhoides, in the enjoyment of tolerable health. For some time previous, however, he had suffered from a slight stricture in the urethra, which had affected his general system, and induced a deranged condition of his digestive organs; but of these symptoms he was not then complaining.

On the 20th of May, the gentleman with whom I saw this patient in consultation, had applied a silk thread around the base of a small hemorrhois, which, in a few days, sloughed, and left the patient comfortable. On the 29th, a second hemorrhois having appeared, and the patient having completely recovered from the effects of the first operation, a ligature was applied around the base of this little tumor also. On the 2d of June, the patient had a chill, followed by severe pain in the right ankle, and soon after, by redness and tumefaction about this part. In the course of the next twenty-four hours, the right elbow and arm as far as the shoulder, were similarly attacked. Notwithstanding the most prompt and judicious treatment, the application of nitrate of silver, blistering, and free scarification, and the internal administration of tonics, stimulants, and

anodynes, for allaying pain and supporting the patient's strength, these local affections rapidly progressed to suppuration.

When I first saw the patient, the whole arm to the shoulder was enormously swollen, boggy, and injected with serous and purulent deposits. It had been deeply and freely scarified; and, from a puncture just below the elbow, pus and sloughy cellular tissue were issuing. The whole had been enveloped in a poultice. The ankle and foot were in the same condition, except that the integuments had not yet given way to the accumulated fluids beneath. The patient was apparently free from arterial excitement; his pulse 88, and of moderate volume; his skin of natural temperature; his tongue clean, moist, and of natural color; his intellectual faculties somewhat subdued and heavy, but without delirium. He had no internal pain, with the exception of a dull, uneasy sensation under the short ribs, on the right side; and this he attributed to having lain on the part. He had no special uneasiness about the anus, no tympanitis, no difficulty in evacuating the bladder, although he had suffered slightly from strangury, and the accumulation of gas in the bowels, for a short time after the application of the ligature. He was on the use of nourishing diet, with porter and repeated doses of Dover's powder. To these I added a grain of quinine every four hours, and small doses of camphor emulsion every hour, and suggested the use of brandy in case the patient should have any symptoms of sudden collapse before the next visit.

June 8th, at 8 o'clock A. M.—The patient's face is bathed in perspiration; his features are sunken; his left hand is cold, clammy, and purplish; his pulse 130 and extremely feeble; his tongue dry, cracked on the surface, and red at the edges; his intellect is clear; he is free from pain; but he has a constant hiccough which has continued since last evening. He had been on the use of small and repeated doses of brandy all night. His condition was too critical to admit of any examination of the arm or ankle. His stimulants were continued; but he died about mid-day. No post-mortem examination could be obtained.

The extensive secondary abscesses that appeared about the arm and ankle in this case, will be recognized by every intelligent surgeon, as the direct result of the previous operation; and those familiar with the pathology of these abscesses, know full well their intimate relation with phlebitis.* They cannot, in this case, be attributed to the mere absorption and remote deposition of purulent matter; for they were preceded by local inflammation in the tissues among which they appeared, and by only trifling inflammation, and probably no suppuration at all at the seat of the operation. Nor are they here attributable to a previous cachectic condition, nor to the influence of impure air, for this patient had recently performed a journey of many hundred miles on mercantile business; he was, at the time, in good health, and on the point of marriage. The freedom from pain, either about the rectum or any internal organ, after the application of the ligature, the secondary abscesses, and the sudden sinking, all serve to show, with almost as much certainty as if the body had been examined, that the fatal termination of this case was the direct result of general phlebitis, induced by the very trifling operation upon a previously distended and inflamed hemorrhoidal vein.

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* See my Essay on Secondary Abscesses, American Journal of Medical Science, November, 1837.

Case III.—The patient in this instance was a gentleman of middle age, in feeble general health; but with no apparent organic disease, or constitutional disturbance, except such as depended upon the existence of a prolapsus ani resulting from, and complicated with, hemorrhoides. The protruding mass was removed by excision, and the subsequent hemorrhage was checked by one or two applications of the actual cautery. The operation was performed by Dr. A. Stevens in March, 1837. The case went on as well as usual for a time, but symptoms of collapse suddenly ensued towards the seventh day, and very soon led to a fatal issue. The symptoms towards the close of the case, Dr. S. was disposed to attribute to supervening phlebitis. No post-mortem examination, however, could be obtained; and this fact was not, therefore, verified. It is the only unfortunate instance that Dr. S. has ever met with, after having operated on considerably over a hundred cases.

Case IV.—In May, 1842, Dr. Mott operated upon a gentleman of middle age and good general health, for prolapsus ani. Two ligatures were applied on the most bulging parts, a needle having been previously passed through the centre. The patient during the operation and for forty-eight hours afterwards, appeared to suffer even less than patients usually do; being free from strangury, and the other usually severe symptoms following these operations. But on visiting him at the end of the second day, Dr. M., to his surprise, found the patient in a state bordering on collapse, with weak rapid pulse, cold skin, jactitation, and other corresponding symptoms. The parts upon which the ligatures had been placed were now examined; and the tumors appearing to be sphacelated, the ligatures were removed. Gentle stimulants were at the same time administered, and more powerful ones afterwards; but without any marked benefit. The patient sunk into a state resembling the last stages of typhus, and expired about the close of the fourth day. No post-mortem examination was obtained.

Although in rugged health just before the operation, this gentleman had been unfortunate in business; his character had been assailed; and he was, consequently, not in a state of equable moral feeling. In a note with which Dr. M. has favored me, acceding to my request to publish this case, he observes, that the patient died a few days after the operation "with symptoms profoundly typhoid, in despite of all general means to save him, aided by the removal of the ligatures." "I mentioned it," he continues, "to several, that some of his symptoms simulated to so great a degree delirium tremens, that at first I was led to inquire if he was a temperate man. It is the only case which I ever lost from this operation; and from being new to me I was unwilling to allow that his death was occasioned by it. During my last residence abroad, I was informed that Sir B. Brodie lost a case from tetanus after the application of the ligature. This was a reason assigned to me by Mr. Cusack of Dublin for the use of the kali purum in these cases."

To the foregoing fatal cases might, perhaps, also be added another in the practice of the late Dr. Physick; and which, according to Dr. Chapman, was the direct result of phlebitis excited by the application of the ligature. "The tying of varicose veins," says Dr. C., "as was formerly practised so commonly as a cure, proved a very prolific source of it [phlebitis], and we are not without examples of its happening in the same way, to the hemorrhoidal veins, of which I once saw an in-

stance, under the care of the late Professor Physick.* Two serious cases after the tying of piles occurred in the practice of J. L. Petit; and these have been quoted in reference to peritonitis. The symptoms, however, might lead us to attribute them to an entirely different cause. After the operations referred to, the patients, says Bushe, had symptoms resembling those of strangulated hernia, nausea, vomiting, hiccough, and abdominal pains. One of them recovered, the other died on the second day. Now, most of the foregoing symptoms are, to say the least, quite as frequent in phlebitis as in peritoneal inflammation. But any severe impressions upon the system in the form of an operation, might excite them. And as the fatal case terminated at the end of two days, a period scarcely sufficient for the fatal course of either phlebitis or peritonitis, the probability is that death was the result of the shock of the operation upon the system.

The foregoing facts are the most fitting comment I can offer on the opinions of those who speak of operations on prolapsus ani and hemorrhoidal excrescences, as being attended with no very serious consequences; and to put the profession right in reference to the statement of a late writer on the diseases of the rectum, who appears to deny the likelihood of phlebitis as one of the results of the application of the ligature.

"As to the occurrence of phlebitis," says Dr. Bushe, "I have never seen a case, nor am I acquainted with one on record. The dread of this consequence has arisen in the minds of some French authors, because they set out with the preconceived idea that these tumors were varices, and then, reasoning from analogy, they arrived at a conclusion which is not tenable. An author, therefore, instead of quoting cases of inflammation of the veins of the leg, from ligature of the saphena, to illustrate the consequences arising from tying hemorrhoidal tumors, ought to have read some of our English authors, who, though they agree with Briquet, Dauce, and others, as to the occurrence of inflammation in some of the cases of ligature of the saphena, have, at the same time, demonstrated that the extremities of this vein are much less liable to become inflamed than its trunk, in consequence of external violence. Mr. Kirby has given a case in which tetanus followed the operation, and in the same manner, I could cite two fatal cases of this dreadful disease, one of which succeeded to a thorn in the heel, and the other followed a very slight abrasion of the skin. It is very much to be regretted that the opponents of the method by ligature have not, like Mr. Kirby, quoted cases, instead of making assertions: such a paucity of facts, therefore, is not likely to have much weight with an impartial surgeon."†

Without at present attempting to criticise the foregoing passage, I would remark, that, independent of Dr. B.'s principal error in supposing that phlebitis never follows the application of the ligature, he has fallen into another in supposing that hemorrhoidal tumors have no special relation to varices. In another part of his book his remarks on this point are more precise:

"I have," says he, "repeatedly injected these tumors with colored water, both from the arteries and the veins, and when cut into while the fluid was injected small jets were observed to issue from many points. I have frequently dissected them with the greatest ease, and found that they were spongy, reddish, and contained both arteries and veins, the latter being most copious, but *always perfectly healthy*."‡

* Amer. Journal of Med. Sci. July, 1843, p. 13.

† A Treatise on the Malformations, Injuries, and Diseases of the Rectum and Anus. By George Bushe, M.D. New York. 1837. P. 182.

‡ Loco Citat. p. 182.

After having paid no small attention to the structure and appearances of these tumors, I am ready to accede to the truth of the foregoing description of them except so far as it refers to the condition of the veins. These vessels I have often found not merely distended enormously beyond their natural size, but tortuous, convoluted and thrown into irregular pouches, with their coats thickened, the blood within them coagulated, and the cellular tissue surrounding them hypertrophied and consolidated, precisely in the same way as we see in some of the worst forms of varices in the veins of the limbs.

On one occasion, in which I assisted Dr. Stevens in an operation for the removal of an immense protrusion of the anus depending upon a vast number of hemorrhoidal tumors that lay beneath the surface, and in which the parts were removed by excision, I took occasion to examine the diseased structure carefully. After the excision, the exposed surface bled profusely. The hemorrhage was checked with difficulty, and only after repeated and protracted efforts with the tampon, in which the patient appeared to suffer infinitely more than if ligatures had been applied. On inspecting the well-exposed bleeding surfaces in this case, I could readily distinguish the minute capillary arteries pouring out their delicate jets of red blood, from the numberless dilated veins, each of the size of a crow quill or larger, which gave the whole surface the perforated appearance of the top of a watering spout, and from which issued a torrent of venous blood. I took occasion afterwards to examine the mass that had been removed. After it had lain for a day or two in diluted alcohol, the dilated veins on its surface had contracted nearly to their primitive size; but on tracing them inwards I found them communicating with pouches at least the sixth of an inch in diameter, which, when dissected from the surrounding parts, might, in size and form, be compared to small leeches. Many of these pouches communicated with a capillary vessel at either extremity. Their coats were rather thick, they were filled with coagulated blood; they were very numerous; pressed upon one another in all sorts of ways, and were held together by thickened and indurated cellular tissue. They were, in short, varicose pouches formed in the course of the hemorrhoidal vessels, just as such pouches are seen to form in the branches of a varicose saphena vein, only more numerous, and in closer apposition, than is usual in the latter case.

Hitherto I have spoken of hemorrhoides and of prolapsus ani, in the same connection. The truth is, that this latter affection, although occasionally occurring alone, as in children, and in some adults of lax fibre, is almost always the result of previously-existing hemorrhoides. The hemorrhoidal tumors, however, are not always in proportion, either in size or number, to the severity of the prolapsus. In some cases, the diseased vessels are so near the surface, or so numerous, as to leave no doubt of their connection with the complicating protrusion. In some instances, even the mucous membrane of the pouch of the rectum itself, appears to be their principal seat. But, in other instances, the diseased vessels are not observable; the mucous membrane, as well as the subjacent cellular tissue, is hypertrophied, indurated, and apparently detached, in some degree, from the proper muscular coat of the intestine, so that, after protruding on either side of the verge of the anus, the whole mass may be removed without bringing into view the varicose vessels that gave rise to it. But, if the exposed surface be carefully examined after the excision, the hemorrhoidal vessels may now be seen pouting out at

the bottom of the wound, perhaps not sufficiently near the track of the incision to have been injured by it. The bulging which they produce, however, although thus deeply seated, leads to a partial closing of the pouch of the rectum, and to a consequent protrusion of this part at every effort to evacuate the bowels. The irritation thus arising establishes a diseased condition of the mucous membrane, and finally the confirmed prolapsus. I have often seen these varicose pouches, after operations for prolapsus, lying entirely uninjured at the bottom of the wound; and, in some cases, they are merely to be felt projecting toward the surface of the cut after the removal of the diseased mass that lay over them. I have, then, always looked upon them as the starting point of the disease that leads to the prolapsus; and have been led to believe that, unless they are exposed and removed during the operation, there is always some danger of a relapse.

Hemorrhoidal tumors are either external or internal. The first are readily managed, either by incision, excision, ligature, or caustic applications. The internal, however, are worthy of much more serious consideration. They rarely extend above the pouch of the rectum; and are, therefore, generally within reach. Hence the great success of operations upon them when properly performed, and where the patient escapes the first effects of the operation itself. But, in some cases, I have known them situated so high up within the rectum as to be beyond the reach of either knife or ligature. Tumors of this sort may, in the end, give rise to prolapsus of the mucous membrane, descend with the descending prolapsus, and finally come within the surgeon's reach. So long, however, as they remain high up, beyond the verge of the anus, although they may frequently bleed, or harass the patient and undermine his health, they are not to be interfered with, except by enemata, suppositories, and the administration of internal remedies.

For these bleeding internal hemorrhoides, I have found more benefit in the use of injections of acetate of lead, than in any other form of local application. I commonly employ this of the strength of a drachm to eight ounces of rain water, and never administer over two ounces of this solution at a time. I repeat the injection after each return of hemorrhage; and, as this most commonly occurs during the effort to evacuate the bowels, I commonly advise the patient to resort to the injection immediately after every stool, until the hemorrhage has ceased for a few days. The usual internal medicines are, the occasional administration of a blue pill, especially where there is reason to suspect any disturbance in the functions of the liver; a dose of oil, or of the extract of teraxicum; or some other mild laxative. But, for the mere evacuation of the bowels, and with the view of correcting an obstinately-constipated habit, I know of no article better than one or the other of the following confections.

First.—Common Rosin, well pulverized, ℥i.
Clarified Honey, ℥v. M.

Second.—Common Rosin, as before, ℥i.
Balsam of Copaiva, ℥ss.
Clarified Honey, ℥ivss. M.

The last of these, when it can be borne, is the most efficacious. But to many persons, and particularly delicate females, the balsam is so nauseous that they are unable to use it. The ordinary dose is from two to

three drachms at bed-time. This dose is generally sufficient to produce one soft and consistent stool early on the following morning, without griping, uneasiness, or any of the usually disagreeable attendants of cathartic medicine. These measures are to be assisted by the occasional use of the hip bath; by cooling, anodyne, and emollient clysters; by a course of regimen most suitable to keep the bowels regular, without, however, stimulating them; and above all, by carefully and gently reducing the prolapsus, after every evacuation of the bowels, and guarding against all movements likely to protrude it in the intervals.

The evils resulting from hemorrhoidal tumors, when allowed to progress, are very numerous. Besides the prolapsus, and its consequences, already mentioned, they give rise to ulceration of the rectum, to fistula in ano, to fistulous opening between the rectum and vagina in females, of which I have seen several cases; and between the rectum and urethra in males, of which I have recently heard of two instances; to swelled testicle; to diseases of the bladder; to constant tenesmus, and uneasy sensations in the limbs; to frequent and copious loss of blood, and its attendant states of anhemia and sinking; palpitations, and dejection of spirits, not to speak of fatal consequences.

But in contrast with these, most of which are the usual results of the disease in question, we should not, in undertaking the treatment of it, neglect to consider the evils that now and then result from surgical operations. Some of these latter evils are of temporary duration, and to be expected as a matter of course; among which are tenesmus, strangury, tympanitis, gastralgia, and nervous symptoms, more or less marked. These usually subside after the first free evacuation of the bowels that follows the operation. Others are of a much severer grade, and happily of rare occurrence. Among which are phlebitis, tetanus, excessive hemorrhage, and fatal collapse from the shock of the operation itself. Others, also rare, are of a more permanent character; as contraction or stricture of the anus, extensive abscesses, obstinate fistula, and, finally, a state of general plethora, from suddenly checking the frequent loss of blood, in a system long habituated to it, and consequently to an accelerated process of sanguification.

As my object on the present occasion is not to write an essay on the subject of hemorrhoides or prolapsus ani, I shall not go into detail in reference to these various points of danger. It is sufficient to say that though some of the results of surgical interference are exceedingly formidable, their occurrence is almost as exceedingly rare; and that if the disease, which in itself is both distressing and dangerous, continues to progress notwithstanding the mild and palliating measures to which we have above alluded, it becomes the surgeon's duty, provided the patient's general health and other circumstances warrant it, to undertake the radical cure of the disease by operation.

With this view, the choice of the particular mode of operation is a matter of much importance, in reference, as well to its immediate, as to its ultimate effects. The most common modes of attacking hemorrhoides and the prolapsus ani resulting from them, are, by the actual cautery, by escharotics, by excision either with the bistoury or scissors, by the ligature en masse, and by a combination of any two or more of these.

The *actual cautery*, although occasionally employed in checking hemorrhage after excision, and for producing permanent contraction of the relaxed tissues about the verge of the anus, is rarely used alone. It is

a most formidable application to the patient; it has no advantages that are not procurable by milder measures; and after the burn has healed, the cicatrix resulting from it may lead to stricture of the rectum, and call for subsequent surgical interference. As a means of treating the diseases in question, it is, therefore, not to be commended.

The *potential cautery*, whatever be the article employed, has no particular advantages to recommend it, to the exclusion of other means that have been much more thoroughly tested; certainly, not the advantage of guarding against either severe pain or fatal phlebitis. The action of kali purum is not easily circumscribed, and its incautious use might lead to serious mischief. The nitric acid spoken of so favorably of late, may answer a useful purpose where the disease lies near the surface of the mucous membrane, or is entirely confined to it; but those in the habit of using this article for producing eschars on other parts of the body, know how difficult it is to produce a deep slough by applying it. I should expect little or no benefit from it where the hemorrhoidal tumors lie deep, and enveloped in thickened and indurated mucous membrane and cellular tissue. Where the mucous coat of the rectum is varicose and tumefied I have occasionally used the solid nitrate of silver with advantage. In such cases, it will answer all the purposes of the mineral acid. It should be applied very freely, and every day or two, for weeks together, in order to effect a permanent cure.

Excision, except in cases where it becomes afterwards necessary to tampon the rectum for arresting the hemorrhage, is much less painful, and more rapidly executed, than either of the other operations. Where the protruding mass lies entirely outside of the sphincter ani, and not likely to allow the parts upon which it is situated to be afterwards drawn within the pouch of the rectum, it may occasionally be advisable to remove it either with the bistoury or the curved scissors. The wound thus produced, however, is often long in healing; it gives rise to tumefaction and irregular pouting of the neighboring parts about the anus, and often calls for the subsequent use of the knife for removing these. Patients rarely get well so rapidly after this operation as after the use of the ligature. Where the protruding mass is attached high up beyond the verge of the anus, excision, of course, is entirely out of the question. The hemorrhage resulting from it under these circumstances, has, in many instances, terminated disastrously; and although I have never seen any fatal cases from hemorrhage myself, they are sufficiently well known to have occurred in the practice of others who have written on this subject. In one case to which I have already alluded, the hemorrhage was alarming, and was controlled with difficulty; but the patient finally got well. The easiest and most effectual mode of applying the tampon under these circumstances, is first to introduce the fold of a cambric handkerchief, previously oiled, on the point of the finger well up within the pouch of the rectum, and afterwards to distend this by crowding the fold of the handkerchief with masses of cotton or of picked lint, until the walls of the intestine are so much compressed as to completely control the hemorrhage. After introducing the tampon in this way, it is to be retained in place by supporting the anus with a T bandage.

The peculiar modification of the operation by excision which was instituted by Dupuytren, and which consists in simply snipping off a few radiated folds of the mucous membrane and integuments around the

verge of the anus, is not applicable to the diseases under consideration; and if employed, must almost always fail to effect a cure. In the simple relaxation of the parts, as seen occasionally in children and persons of lax fibre, it may answer a useful purpose.

Ligature en masse may be employed in different ways. Where the hemorrhoides are in detached masses, and entirely surrounded by mucous membrane, they may be simply drawn outward by a tenaculum, needle, or forceps, and then secured by a strong silk ligature, which should be drawn around their base so tightly as entirely to arrest the circulation through them, and cause them to slough. The ligature, however, when applied in this way, notwithstanding all our care, will occasionally slip. It is better, then, even in these simple cases, to transfix the tumor with a needle before applying the ligature. This should then be tied between the needle and the base of the swelling. A process still more certain, and when the tumors are large, one that should always be adopted, is to transfix the base of the swelling with a needle armed with two ligatures, which are to be secured partly on one side, and partly on the other, around the neck of the protruding mass. When the tumors involve a portion of integument external to the verge of the anus, the application of the ligature over this is apt to be exceedingly painful, and to give rise to nervous symptoms. Before tightening the ligature in such cases, the common integuments on the external side of the tumor should be divided with a scalpel, and the ligature made to pass along the track of the incision.

But when the protrusion is considerable, and forms, as it often does, an oblong bulging mass on either side of the cleft of the anus, the most judicious mode of attacking it, is, first to administer an enema for evacuating the rectum, and enabling the patient to bring the whole of the diseased mass fairly into view. He should then be placed on his left side with his thighs strongly flexed and his hips projecting over the edge of the bed; or he may rest on his feet with his body bent over a low table, or over the edge of the bed, and with his hips projecting towards the surgeon. The nates are then to be separated by the hands of assistants. The surgeon next introduces his left index finger into the rectum, so as to hook down the protruding mass from above. If necessary, he may be aided in this by an assistant who seizes the mass with a tenaculum, needle, or claw forceps. In general, the finger of the surgeon is all that is necessary to bring down the mass and keep it fixed, prior to the next step of the procedure. A curved needle, secured in a shaft, and armed with two stout silk ligatures, is now made to transfix the base of the protruding mass from within outward, first on one side and then on the other. In this way four ligatures are inserted, two on either side, in the track of the punctures. The ends of these ligatures are then to be seized by the surgeon's left hand, so as to hold the protruding mass well drawn out by them. While thus held, he next carries the point of a scalpel along their outer side, in the line of junction between the mucous membrane and the skin; dividing completely through the skin and into the cellular tissue at the external base of the swellings; and making the two incisions meet each other in front and rear, at which points the mucous membrane is also to be slightly snipped for clearing the track of the ligatures. The four strings are then to be tightened around the base of the four several divisions of the diseased mass previously well drawn out. After firmly securing the ligatures, the most bulging portions of

the tumors, now deprived of their circulation, may be excised either with the scalpel or the scissors, and the rest afterwards carefully introduced within the rectum.

The objects effected by this procedure, are, first, that no portion of the external skin is removed, and no portion of the sphincter ani muscle is involved in the operation, thus avoiding the chance stricture of the anus after the healing of the wound; secondly, no portion of the sensitive integument is included in the ligature, thus avoiding the principal cause of pain, and of serious nervous symptoms; thirdly, a smooth and even wound is made around the verge of the anus, thus avoiding the ragged and uneven ulcerations, and the subsequent protrusions, that so frequently follow after other modes of applying the ligature, and that often call for the subsequent use of the scissors.

After the operation, a fold of lint, wet with cold water, or laudanum and water, may be applied to the part, and the patient put to bed. If there is any disposition to protrusion of the anus, the parts must be supported by a T bandage. A full anodyne should now be administered. In the course of the following twenty-four hours, and after the first shock of the operation has subsided, the patient usually begins to complain of pain at the neck of the bladder and inability to void his urine. If these symptoms are not overcome by fomentations and emollient drinks, a catheter may be introduced; with the first evacuations of the bladder, they commonly disappear. Tenesmus and the accumulation of gas in the bowels, are looked for as a matter of course, and commonly disappear after the first free discharge of fæces. If this is not effected before the close of the second or third day, a dose of castor oil, or an emollient enema, may be administered. The ligatures usually fall off within the first ten days, and the slight ulceration left by them cicatrizes soon afterwards.

In patients that had long suffered from the disease, especially when accompanied with frequent loss of blood, the sudden arrest of this after the operation, leads to rapid filling up of the general system. I have never yet seen any evil consequences arising from the plethora thus induced, although others have reported cases of apoplexy arising from it. In order to guard against this condition of system, the patient should be restricted to a spare diet, required to take sufficient exercise, and to keep the bowels free, if necessary, by gentle laxatives.

It may here be asked, does either of the modes of operating above described, offer any particular immunity, greater than the others, against the occasionally fatal consequences to which we alluded at the outset? In respect to all of these, excepting only such as arise from hemorrhage, we may answer, no. They are to be prevented, not so much by the adoption of any special mode of operating, as by selecting the proper time for the operation, and proper class of patients upon whom it is to be performed. As to tetanus, I look upon it as no more likely to ensue after operations about the rectum or anus, than after simple operations in any other part of the body. The same remark will, in some degree, apply to the occurrence of fatal prostration from the shock of the operation itself. It should be remembered, however, that few parts of the body are more sensitive than the verge of the anus, and no class of operations more painful than those about this part; and hence that, on persons suffering from extensive internal disease, whose power of endurance is nearly exhausted, and who are intolerant of pain, operations upon this part of the

body should generally be shunned. Pain, when severe and long-continued, has, in some cases, as marked an effect in exhausting the vital forces, as actual loss of blood. On one occasion I witnessed death from the pain of an ulcerated blister on the back of the neck.

In reference to phlebitis, it should be a general rule not to interfere with the diseases of the hemorrhoidal veins, while the parts are in a state of excessive irritation or actively inflamed; but to subdue these conditions by the milder measures to which we have above alluded, before resorting to the operation. I have, on a former occasion, shown that the danger of interfering with varicose swellings, is not so much attributable to the particular mode of attacking them, as to the nature and condition of the parts attacked.* Phlebitis, however, we have reason to believe, is much less frequent after operations upon hemorrhoidal swellings, than upon varicose veins in other parts of the body. This fact may, probably, be explained on a principle for the first time, I think, pointed out by Mr. Brodie,† that the larger veins, when injured, are more apt to give rise to general phlebitis, than their smaller branches or ultimate ramifications.

ART. III.—*Case of Hypertrophy of the Lips and lower part of the Nose, in a young Lady, successfully treated.* By WILLIAM DETMOLD, M.D., of New York.

IN July, 1843, I was consulted by Miss —— of South Carolina, nineteen years of age, with dark hair and complexion, and of a full and robust habit. She was afflicted with a considerable enlargement of the lips and of the lower part of the nose, which, though she otherwise enjoyed perfect health, naturally excluded her from almost all the enjoyments of youth. She had taken for several years the advice of distinguished medical men in different parts of the country, without obtaining relief, and she now applied to me for a last trial, prior to her seeking help on the other side of the Atlantic. The history of her case, as far as I was enabled to make it out from her own and her mother's account, who had accompanied her north, was briefly as follows:—About three years before (when at the age of sixteen, enjoying at the time perfect health, after having had, at the age of fourteen, her menstrual function regularly established), she was, without any apparent cause, attacked with a violent erysipelas of the face, accompanied with enormous swelling, which closed both her eyes and increased the volume of her lips to a frightful degree; the teeth made deep indentations on the inside of her lips and cheeks; the skin was of a dark red color and covered with vesicles; and violent fever and loss of consciousness for several days accompanied these local symptoms. The treatment appears to have been conducted on general principles, and probably she was salivated. The swelling

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* An Inquiry into the Pathology and Treatment of Varices. American Journal of Medical Science, January, 1843.

† Medico-Chirurg. Transact., vol. vii.

gradually subsided, with a fetid purulent discharge from the mouth, and it appears from her account that part of the epithelium of the lips and mouth sloughed away. The swelling of the lips and lower part of the nose, however, never entirely disappeared, and the upper lip especially retained nearly double its natural volume.

She had been twice to the north, partly for a change of air and partly to avail herself of medical advice; but hitherto, this enlargement, which disfigured her face in a distressing manner, had braved all the remedies which had been advised, and which had been, as may be imagined, faithfully applied.

Her upper lip was, as stated above, about double the natural size, and the swelling extended in a lesser degree to the adjoining parts, viz., the lower lip and the lower part of the nose. There was a creeping sensation, but not the least pain on pressure in the swollen parts, nor was there any heat or hardness in the swelling; the lips had lost their bright red color, and they were rather of a livid bluish tint; and in cold weather, or after exposure to a sharp wind, the upper lip was apt to crack. Besides, the swelling was not always the same; it varied at times without apparent cause; but it was always worse a few days before the menses made their appearance, or after the system had been the least excited or heated. Her general health was otherwise perfectly good.

From what I could gather of the different means applied by the different physicians who had been consulted, the patient had gone through an alterative course of treatment with antimony; she had been under the effect of mercury, and iodine had of course been unsparingly administered externally as well as internally; sea-bathing and a regular course of purging had been gone through with, and even the mysterious aid of animal magnetism had been invoked by the disconsolate family; besides, a number of other quack medicines, inclusive of homœopathy, had been tried, but all in vain.

The only advantage that thus far was gained, was to prove to me that if help was possible, it was not to be obtained by the ordinary, though perhaps rational enough means, furnished by the pharmacopœia, but that I had to strike out a new path, and devise a method of treatment which my predecessors in the case had not yet tried, and, therefore, not yet proved inefficient.

After observing the patient for some few days without doing anything, I determined to combat this obstinate complaint with the following means: repeated application of leeches, external application of ice, local pressure, and electro-magnetism, aided by saline aperients at regular intervals, and total abstinence from animal food. The result will show how far this, at first sight perhaps motley array of remedial agents, succeeded in reducing a most uncouth looking proboscis to the fair dimensions and symmetrical proportions of a young lady's lips and nose.

I commenced my operations with a dose of sulphate of magnesia and eight leeches applied to the inside of the upper lip; the bleeding was favored by warm fomentations; and after it had ceased, I applied a bandage which pressed the lips against the teeth, with two rollers attached to it by means of which the nose was compressed. Over the whole of this, I applied small bags with pounded ice. Next morning I went to see my patient, rather sanguine with the expectation of having made some impression. My welcome may be imagined by the reader, when I was led by the speechless mother to the bed of her daughter; bandages, ice, and

body should generally be shunned. Pain, when severe and long-continued, has, in some cases, as marked an effect in exhausting the vital forces, as actual loss of blood. On one occasion I witnessed death from the pain of an ulcerated blister on the back of the neck.

In reference to phlebitis, it should be a general rule not to interfere with the diseases of the hemorrhoidal veins, while the parts are in a state of excessive irritation or actively inflamed; but to subdue these conditions by the milder measures to which we have above alluded, before resorting to the operation. I have, on a former occasion, shown that the danger of interfering with varicose swellings, is not so much attributable to the particular mode of attacking them, as to the nature and condition of the parts attacked.* Phlebitis, however, we have reason to believe, is much less frequent after operations upon hemorrhoidal swellings, than upon varicose veins in other parts of the body. This fact may, probably, be explained on a principle for the first time, I think, pointed out by Mr. Brodie,† that the larger veins, when injured, are more apt to give rise to general phlebitis, than their smaller branches or ultimate ramifications.

ART. III.—*Case of Hypertrophy of the Lips and lower part of the Nose, in a young Lady, successfully treated.* By WILLIAM DETMOLD, M.D., of New York.

IN July, 1843, I was consulted by Miss —— of South Carolina, nineteen years of age, with dark hair and complexion, and of a full and robust habit. She was afflicted with a considerable enlargement of the lips and of the lower part of the nose, which, though she otherwise enjoyed perfect health, naturally excluded her from almost all the enjoyments of youth. She had taken for several years the advice of distinguished medical men in different parts of the country, without obtaining relief, and she now applied to me for a last trial, prior to her seeking help on the other side of the Atlantic. The history of her case, as far as I was enabled to make it out from her own and her mother's account, who had accompanied her north, was briefly as follows:—About three years before (when at the age of sixteen, enjoying at the time perfect health, after having had, at the age of fourteen, her menstrual function regularly established), she was, without any apparent cause, attacked with a violent erysipelas of the face, accompanied with enormous swelling, which closed both her eyes and increased the volume of her lips to a frightful degree; the teeth made deep indentations on the inside of her lips and cheeks; the skin was of a dark red color and covered with vesicles; and violent fever and loss of consciousness for several days accompanied these local symptoms. The treatment appears to have been conducted on general principles, and probably she was salivated. The swelling

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* An Inquiry into the Pathology and Treatment of Varices. American Journal of Medical Science, January, 1843.

† Medico-Chirurg. Transact., vol. vii.

gradually subsided, with a fetid purulent discharge from the mouth, and it appears from her account that part of the epithelium of the lips and mouth sloughed away. The swelling of the lips and lower part of the nose, however, never entirely disappeared, and the upper lip especially retained nearly double its natural volume.

She had been twice to the north, partly for a change of air and partly to avail herself of medical advice; but hitherto, this enlargement, which disfigured her face in a distressing manner, had braved all the remedies which had been advised, and which had been, as may be imagined, faithfully applied.

Her upper lip was, as stated above, about double the natural size, and the swelling extended in a lesser degree to the adjoining parts, viz., the lower lip and the lower part of the nose. There was a creeping sensation, but not the least pain on pressure in the swollen parts, nor was there any heat or hardness in the swelling; the lips had lost their bright red color, and they were rather of a livid bluish tint; and in cold weather, or after exposure to a sharp wind, the upper lip was apt to crack. Besides, the swelling was not always the same; it varied at times without apparent cause; but it was always worse a few days before the menses made their appearance, or after the system had been the least excited or heated. Her general health was otherwise perfectly good.

From what I could gather of the different means applied by the different physicians who had been consulted, the patient had gone through an alterative course of treatment with antimony; she had been under the effect of mercury, and iodine had of course been unsparingly administered externally as well as internally; sea-bathing and a regular course of purging had been gone through with, and even the mysterious aid of animal magnetism had been invoked by the disconsolate family; besides, a number of other quack medicines, inclusive of homœopathy, had been tried, but all in vain.

The only advantage that thus far was gained, was to prove to me that if help was possible, it was not to be obtained by the ordinary, though perhaps rational enough means, furnished by the pharmacopœia, but that I had to strike out a new path, and devise a method of treatment which my predecessors in the case had not yet tried, and, therefore, not yet proved inefficient.

After observing the patient for some few days without doing anything, I determined to combat this obstinate complaint with the following means: repeated application of leeches, external application of ice, local pressure, and electro-magnetism, aided by saline aperients at regular intervals, and total abstinence from animal food. The result will show how far this, at first sight perhaps motley array of remedial agents, succeeded in reducing a most uncouth looking proboscis to the fair dimensions and symmetrical proportions of a young lady's lips and nose.

I commenced my operations with a dose of sulphate of magnesia and eight leeches applied to the inside of the upper lip; the bleeding was favored by warm fomentations; and after it had ceased, I applied a bandage which pressed the lips against the teeth, with two rollers attached to it by means of which the nose was compressed. Over the whole of this, I applied small bags with pounded ice. Next morning I went to see my patient, rather sanguine with the expectation of having made some impression. My welcome may be imagined by the reader, when I was led by the speechless mother to the bed of her daughter; bandages, ice, and

everything had been removed; the face was swollen to an enormous degree, and the eyes were completely closed; and all that the mother said was, that now the face was about as bad as it had been three years ago, when the disease first commenced.

Here I had to make the best of a bad case. I told them that all this was perfectly natural, though the patient looked anything but natural. I talked to them of idiosyncrasy, which I knew they would not comprehend, and therefore thought that they would feel satisfied with the explanation. I told them that I had half expected this and the like things, but that above all, the course prescribed should be persevered in. I immediately reapplied the bandage and the cold fomentations; the latter, however, soon produced pain in the teeth, and moreover, as the swelling, in consequence of the cold application, assumed a dark blue color, and became massive and unelastic to the touch, as though plastic lymph were being deposited, I abandoned the ice entirely; and I now commenced applying, twice a day, a strong current of rapidly succeeding shocks from an electro-galvanic battery, the compressing bandage being, at the same time, kept on day and night. Under this treatment the temporary swelling went down with surprising rapidity; and after a lapse of about ten days, I had the satisfaction of hearing the mother, as well as the patient, admit that the face was smaller than it had been at any time during the last three years.

I persevered a fortnight longer in the same course, together with the above-mentioned general treatment, viz., total abstinence from animal food, and every third day a saline aperient; and though at the end of that time, the face evidently was materially improved, yet during the latter part of that period the improvement had not progressed. Ascribing, as I did, the improvement to the resuscitation of an active inflammation, and its energetic and rapid reduction by the means applied, I resolved to follow up that plan; and I accordingly proposed to apply again leeches, this time for the express and avowed purpose of reproducing the inflammation. I had some difficulty in persuading the party interested to consent to it, but I finally prevailed upon her. But this time, I applied only three leeches. I had, a few hours afterwards, the doubtful satisfaction of seeing the swelling commence, which, however, did not now reach so high a degree as the first time. The same course of treatment and the same result followed. Three leeches were now regularly applied every fortnight, always producing active erysipelatous inflammation, the solution of which, under the stated treatment, seemed to carry off every time some of the old swelling.

Altogether, the leeches were applied six times, and the same course of treatment was pursued without any alteration, except that one day, when I found the patient's pulse very full and her face redder than usual, I took ten ounces of blood from the arm. The young lady began already to take regular walks in daytime without a veil, which she never had done before, and an ordinary observer would have seen nothing unnatural in her face. She remained, however, till late in the fall under my treatment, which still continued the same, except that, instead of applying leeches, I scarified the inside of her lips once a week with a lancet.

She left New York, late in the fall, perfectly restored, to return by land to her native State; but soon after her arrival at Philadelphia, she became alarmed by the return of the creeping sensation in her lips, whereupon she immediately returned to New York; and although I could not

discover the slightest swelling, yet she begged me to resume and continue my former treatment for some time longer. She left, however, soon after, perfectly satisfied and happy.

The most gratifying letters from her since, have proved to me not only the complete and lasting success of my treatment, but also her warmest gratitude.

I do not claim to have applied any new remedies in this case, but perhaps the combination of those applied, and the intentional resuscitation of the original inflammation for the purpose of removing its own product, are somewhat out of the common routine of medical practice; and as the best and surest test, success in a case of long standing, has justified the plan, I have deemed the case to be worth laying before the profession, partly on account of the interest of the case itself, and partly, because a similar treatment may prove effectual in analogous cases.

ART. IV.—*Medical Jurisprudence.—Notes of a Trial for Murder by Suffocation.* By CHARLES A. LEE, M.D., Professor of General Pathology and Materia Medica, in Geneva Medical College.

DR. FORRY:

Dear Sir—The following is a brief abstract of the report of the late trial of Leitga, as prepared for my edition of Guy's "Forensic Medicine," which you have requested me to furnish for publication in your Journal. As it was my object merely to present the leading and most important facts in the case, you will perceive that the medical and other testimony has been much condensed, and that the charge of Judge Kent has been necessarily omitted. Still, as it is, I believe it presents some interesting points, and involves some considerations to which the attention of the profession may be profitably directed.

I am, very truly, yours, &c.,

CHARLES A. LEE.

New York, June 12, 1844.

A case of trial for murder by *suffocation*, lately came before the Court of Oyer and Terminer, of the city of New York, Judge William Kent presiding; in which Wm. Leitga, the prisoner, was accused of thus destroying his wife, and afterwards setting fire to her bed, by which the body was considerably burned before the fire was discovered and arrested. It appeared in evidence, that they had lived very unhappily together, both being addicted to habits of intemperance, and had been quarrelling at one or two o'clock of the morning on which the fire took place (it being discovered about six o'clock). The deceased was found lying on a cot, a little on her right side, with a large pillow over her face, but not covering the whole head; the arms bent up and lying across the breast under the pillow, which was partly burnt—her limbs were burnt to the knees, and also her right arm, the rest of the body not much burnt—the countenance was distorted, the eyes open, and the tongue protruded from the mouth nearly an inch. The cot on which she lay was about four feet

from the stove; there was no appearance of fire between the cot and the stove; but everything showed that the fire had commenced at the foot of the cot and worked up; an empty lamp lay on the floor about three feet from the foot of the cot—bed clothes were lying about the room, and everything indicating that there had been a violent quarrel. As the testimony of Dr. Rogers contains the principal facts in the case, I present it in detail:

Dr. James L. Rogers testified that "he saw the body about 8 o'clock on the morning of October 29, 1843; the body was slightly inclined to the right; the arms were up, inclining to the breast, but not on it; the lower part of the right arm and hand were burnt to a crisp; the hair was burnt off the top of her head; the left cheek was burnt on a place about as large as half a dollar; the transparent part of the left eye was scorched; the body was burnt across the stomach down; below the knee the flesh was burnt almost entirely off—above the knees to the abdomen, it had the appearance of a ham being smoked; there was no burn on any other portion of the body except the left ear; the mouth was not burnt; the tongue protruded; the countenance perfectly calm; no mark was perceptible around the neck or any other place, except a small flesh wound on the right side of the eye. On dissection, the brain was found perfectly natural—stomach also healthy, containing about two spoonfuls of liquid matter; the bowels were perfectly healthy, as were the kidneys, except that they all appeared somewhat congested; the lungs and heart were healthy, but the vessels of the lungs were deluged with dark venous blood, as was the right side of the heart; the left side of the heart was nearly free of blood."

The District Attorney asked what was his opinion of the cause of death. *Witness*—"In the absence of all natural causes, of which there were none, I should say she died from stoppage or prevention of air from the lungs; it may be called *suffocation;* the same appearances would be produced, either by the breath being stopped by something placed over the nose and mouth, or by drowning. I observed no appearance of intoxication; I think I never examined a body, where there was a more healthy appearance than that presented. Where there is a dense smoke or carbonic acid gas from the burning of charcoal, the same appearances of the lungs and heart would exist in some measure, but not so fully, as the air in such cases continues partially to have effect. The fact that one eye was burnt, the placid state of the countenance [this was denied by other witnesses who first saw the body, and can hardly be presumed, from the protruding of the tongue, &c.], and the position in which she lay, led to the conclusion that she must have been dead before the fire. The probability is, that if the person had been alive when the fire reached her, she would have shut her eyes, and one of them would not have been burnt. There was no blister on the eye, as there would have been, had it been burned during life. There was also no red line on the body to where the fire came, which is also a very certain sign of burning before death."

Cross-examined.—"In the case of a person who dies of intoxication, there is a congestion of the brain; the eye-balls are distended, and there is, at times, a smell of alcohol in the stomach and brain."

Mr. Brady asked the witness, if a person got intoxicated and in a position to prevent respiration, whether the same appearances would not be presented as in the present case?

Witness.—"It would depend upon this position. If the head was

down and respiration stopped, there might be a paralysis; it is very difficult for persons to suffocate themselves. If paralysis did occur from intoxication, the brain would show it; but there was no appearance of the kind in the present case at all. There was hardly the usual quantity of water in the brain."

Brady.—"Could not this woman have got so beastly drunk, that she might have got in a position to suffocate?"

Witness.—"Such might have been the case, but it would show itself on the brain."

Brady.—"Would you say that she did not go to bed drunk that night?"

Witness.—"In the absence of all appearance or symptom to that effect, we were induced to believe that there was nothing to justify a supposition of the kind. If a person died of intoxication, the brain would show it, and in persons habituated to intoxication, there would be a morbid appearance about the stomach and lungs—a bloated countenance and other marks, which would distinguish it. Suffocation and apoplexy present different appearances after death: in the first case, the lungs cease their functions from want of air, yet the blood passes to the brain, and returns, as there is nothing in the neck to prevent it; but in apoplexy or strangulation, as in the case of a cord round the neck, the blood stops, and the brain exhibits the effect. In suffocation, the breath may be stopped in a minute or half a minute, so that a person would cease to struggle, and in ten minutes be dead. There was an indentation of a key on the left breast of the deceased, which might have been made by a heavy arm pressing on it."

Dr. Putnam testified to nearly the same effect. He said that "none of the viscera exhibited any marks of intemperance; that if death had been so caused, the brain, stomach, and countenance, would show it; the brain, particularly, would be congested. In death by strangulation there would probably be proof of violence perceptible about the neck, and the tongue would ordinarily protrude; it generally produces apoplexy. Suffocation may be produced by stopping the respiratory organs, or by inhaling gases. To distinguish which of these causes, one must know the attending circumstances. A person dying of suffocation by inhaling carbonic acid gas, would exhibit some change of countenance. I saw nothing in the body externally or internally that could account for death. Taking everything into consideration, I conclude the death to have happened from suffocation. A pillow held over the nose and mouth, produces such death in two or three minutes, without external marks. I believe the fire to have been communicated to the body after death."

Cross-examined.—"My opinions have been formed from reading; never attended but four post-mortem examinations; never of one who died from suffocation from any cause. Congestion of the brain would certainly be found after death from intoxication; so would also inflammation of the stomach. Post-mortem examination was made at 11 o'clock A. M., stomach appeared as if she had not eaten for six or eight hours; had she gone to bed drunk at 1 or 2 o'clock the night before, should expect to find evidence of the fact; I should not expect to find a morbid state of the stomach in the case of a person who drank *moderately*, that is habitually, but not to intoxication; never read of a case of strangulation without marks of external force; whether the tongue protrudes or not, depends upon the peculiar way in which the exterior force is applied. Suffocation may happen accidentally, by getting into

a position in which it is impossible to breathe; this is the case often with infants; it is not impossible that this might occur in the case of an adult, in a state as helpless as a child, but the probability is against such an occurrence. In the case of a person in a room where there was smoke or gas, or corrupt air of any kind, a drunken person's death might be much expedited. In cases of death by noxious gases, the tongue is usually more or less protruded, and there is more or less frothy appearance about the mouth. In ordinary suffocation, not by gases, &c., it is rare that the tongue protrudes; in cases of violent suffocation it is not common; difficult to say, on a post-mortem examination, whether the person died from violent or accidental suffocation.'

Physicians, as usual, were called *on behalf* of the prisoner, and some conflicting, if not opposing, opinions, were advanced. *Dr. Archer* (Coroner) "thought that the burns had been inflicted after death; saw the stomach, thought it did not look entirely healthy, as there was a turgid appearance of the vessels, showing that it had been a good deal stimulated. There was no pink margin round the burns; never found an exception of death from burning that there was an absence of the pink margin; did not consider it a sign of suffocation that the tongue protruded; thought the eye was burnt after death. In death from carbonic acid, the countenance is generally placid, and it is not common for the tongue to be protruded; the brain and lungs are more or less congested; if there are no external marks, no person can say positively whether the persons died from natural causes, or from violence. If a person dies after a debauch, I should expect to find evidences of it in the brain or stomach. It is impossible to say how long after a person has been drinking, its traces would be lost from the system; when the effect is gone, however, the liquor is gone."

Dr. Rawson testified, that 'he had attended post-mortem examinations in cases of death from suffocation, and lately, where two persons were suffocated by charcoal; their countenances were swollen, and the eyes somewhat obtruded; there was distortion of features (one more than the other, as the patient lay on his face); in cases of suffocation, the brain is generally congested, and the blood blacker in the different vessels than in ordinary cases, and the lungs more or less congested; countenance more or less distorted; in such cases should judge more from the blood in the arterial system, than from the brain; there is no particular condition of the heart, except that there is black blood."

The testimony of *Dr. Middleton Goldsmith* was to the same effect.

In summing up the case, Mr. Warner, the counsel for the accused, among other remarks, said, that the medical testimony did not agree, and that it was filled with doubts and uncertainty. "The positiveness," he observed, "with which medical men give their testimony, is to be ascribed to the care they have of their own reputation in their profession, and to the fear they have of seeming ignorant of their profession. These witnesses disagree as to the indications of intemperance presented by the stomach of the deceased. Dr. Archer, alone, saw any. The fact will appear abundantly, that she was very intemperate," &c.

Mr. Brady quoted from Beck's "Medical Jurisprudence," where it is stated, that most physicians are not competent to make post-mortem examinations, and hence argued that those who made the dissection in the present case, were probably incompetent!

Judge Kent, in his charge, came to the conclusion, after a full reca-

pitulation of the testimony, that 1st. *nothing positively certain was shown as to the cause of death; and* 2d. *nothing positively excluded the idea that it was occasioned by suffocation—the probability being in favor of the latter.* The Judge also instructed the Jury, that unless they found that the death was occasioned by *smothering*, no matter in what way effected, they could not find the prisoner guilty; although they might come to the conclusion that the deceased perished from burning, or in some other manner not stated in the indictment, and by the hands of the prisoner. *Verdict—not guilty.*

Remarks.—A careful analysis of the evidence in the above case can hardly fail to satisfy any well-informed physician of the guilt of the prisoner. And first as to the facts going to prove that the deceased was smothered. The position of the body—the position of the hands—the appearance of the countenance—the protrusion of the tongue—the pillow over the mouth and nostrils—the open eye—the absence of vesication and of the red line round the margin of the burn—the congestion of the lungs and right side of the heart—the empty condition of the left ventricle—the dark color of the arterial blood:—all speak but one language—all go to prove most conclusively, that death could have resulted in no other manner than by violent suffocation.

If suffocation from violence was not the cause of death, to what could it be attributed, with any degree of probability? Was it from intemperance or apoplexy, brought on by drinking? It would certainly be a strange coincidence that such should have occurred, attended with all the accompanying circumstances of so suspicious a character; but the post-mortem appearances contradict such a supposition. Had death been occasioned by alcohol, it could not have caused death in so short a space of time, three hours, except by producing apoplexy; and apoplexy of a character so grave as to destroy life so speedily must inevitably have left marks of extensive cerebral congestion, if not effusion. For example, a coroner's inquest was held during the present month, over the body of Johanna Prim, aged 61, who had been for twenty years a drunkard. After drinking nearly half a pint of gin, she fell suddenly head foremost into a bed, where she lay on her face for nearly two hours; and when she was taken up, she was found just breathing her last, and died almost immediately. On dissection, which was carefully made by Dr. Goldsmith, the vessels of the scalp bled freely on division, the blood being very dark; there were at least three ounces of bloody serum under the dura mater and considerable effusion under the arachnoid tunic; all the vessels of the pia mater were excessively turgid, especially in the ventricles, which contained a considerable quantity of serum; while the whole substance of the brain was studded with red points.—*Verdict*—death from *apoplexy*, induced by a large draught of gin, or from intoxication. I could give a number of similar cases, but it is unnecessary. It may, however, perhaps be laid down as a rule, that in cases of death from an excessive dose of alcohol, where it has resulted within six or eight hours from the time the liquor was swallowed, the brain will generally indicate the proximate cause of dissolution. The *exciting* cause is, of course, to be ascertained from other testimony and other circumstances. The stomach may or may not, contain any of the intoxicating fluid, but the smell, if it be a distilled liquor, will generally be present; nothing positive can be determined from the condition of the

mucous membrane, nor from the lungs or heart. I think it very certain, therefore, that the deceased did not come to her death from the effects of intoxication. But was she not smothered by carbonic acid or some other gas? 'There was no proof,' said Judge Kent, 'of the existence of noxious gases in the room. If any, they must have come from the stove. The fire was very recently kindled; the top of the stove was off, and the coals were only partially ignited; and this occurred in a very large, and not very close, room.' The supposition that she died from the effects of the burning while asleep or intoxicated, also that it was a case of *spontaneous combustion*, as was gravely argued by Mr. Brady, are not worthy of a moment's consideration. The only rational conclusion, then, is that death was caused by violent suffocation, most probably effected by pressing a pillow over the mouth and nostrils of the deceased, while she was held in that position by manual force.

It is humbly submitted, whether the above case does not enforce the propriety of our Courts adopting a regulation which I have elsewhere suggested, namely, that where medical opinions are wanted to bear upon decisions involving life and death, to say nothing of character, the Court should summon such physicians of age and experience, as have made Medical Jurisprudence a particular study, and who have no particular bias for or against the accused. The mere fact of being subpœnaed by a person whose life is in jeopardy, naturally leads the witness to testify in his favor, if possible, at least; and there are few lawyers who have not skill enough to get from witnesses, thus situated, sufficient admissions to neutralize the positive testimony, however weighty, which may be offered on the opposite side. It is natural to lean on the side of mercy, and it is right; but as *medical opinion* in courts of justice is *evidence*, it is submitted whether it is strictly consonant with the strict demands of justice, that every person accused of crime should have the privilege of summoning whomsoever he pleases, provided he hails, under a professional garb, to give opinions, clashing, as in the above case, with principles of medical science, well known and established. It is this practice which has brought medical testimony into disgrace in our courts of justice, and made doctors upon the witnesses' stand, a standing butt of ridicule to the bar. For example, in the above trial, a man by the name of Draper, calling himself a physician, from a neighboring city, was brought forward, without knowing any of the particulars of this case, to put down or neutralize the testimony of Drs. Rogers, Putnam, &c., by contrary opinions of his own. He spoke with the utmost positiveness on every point that was raised—especially as to appearances on dissection, in cases of death from intemperance, suffocation, &c., although it came out that he had made no post-mortem examinations himself; and as to medical writers, he said "he had no confidence in them—they copy from each other, without making experiments;" to which the District Attorney replied, "They know as much as you by your own confession, for you say you have not made these experiments regarding which you testify." I, therefore, trust that a reform is not far distant; for who does not perceive that as medical testimony is, at least, theoretically regarded, every one accused of crime has it in his power to oppose countervailing evidence in every case; and this is actually equivalent to giving an individual the privilege in any trial, to get up and manufacture what testimony he pleases; and it must be admitted? The practice of appointing certain medical men, in

a particular district, whose duty it shall be to testify in cases where medical opinions are wanted, as practised in Austria and other parts of the continent of Europe, would be attended with very great advantages, not only insuring a more just and equal administration of justice, but leading to the diminution of crimes, by increasing the certainty of their detection.

ART. V.—*Cases of Inflammation of the Synovial Membrane of the Knee Joint, cured by the Introduction of a Seton into the Cavity.* By J. P. STEVENS, M.D., of Liberty county, Georgia.

With Additional Remarks on the same, by JOHN LE CONTE, M.D., of Savannah, Georgia.

CASE I.—On the 20th January, 1842, Mr. S. W. aged 22, of rather full habit, remarkable hitherto for his agility and muscular strength, consulted me for a disease of his right knee. There was considerable swelling and some pain, referred to the inner condyle of the femur. I abstracted about 5 oz. of blood by cupping, and directed the knee to be rubbed three times per day with the ung. veratrine, and a roller bandage to be worn as tightly as he could bear it. With this course of treatment he gradually improved, and I heard nothing from him until the 11th August, when, from being very actively engaged for some time, the swelling and pain returned with more violence than ever. My associate, Dr. J. Harden, being called to visit him, he immediately plunged a lancet into the sac, and gave exit to a pint and a half of a bloody serous-looking fluid. A blister was immediately applied, but in forty-eight hours the accumulation was as large as ever. He was then removed to within a mile of my residence, and we visited him in concert. The knee, at that time, presented the following appearances:

Aug. 17.—There was a uniform swelling up the anterior part of the thigh and *between the patella* and the outer and *inner condyles* of the femur. There was no pain upon pressure, and the fluctuation was very distinct. Upon pressing the patella, it seemed to be completely *immersed* in fluid. There was no redness observable upon any part of the knee. We again opened the sac, and gave exit to about the same quantity of fluid, presenting similar appearances, but of rather thinner consistence, and more like synovia. A tight bandage was immediately applied, and directions were given to make use of the veratrine ointment three times per day. The peculiar sensations produced by the ointment were experienced without any interruption; and under this course of treatment, the limb retained its natural size, and the following liniment was then employed;

℞—Tinct. Canth. ℥ iv.
" Camph. ℥ ij.
Spts. Tereb. ℥ i.
Acid. Acet. pur. ℥ i.

The reduction continued slowly, until, from no appreciable cause, the swelling returned to its former size, within the space of twelve hours.

Sept. 12.—Evacuated the contents of sac, and inserted a silver catheter armed with a half skein of silk thread, for two inches upward, commencing midway between the patella and inner condyle of the femur; enjoined absolute rest.

Sept. 13.—Inflammation very much increased, swelling becoming uniform throughout the sac. Directed a dose of Ol. Ricini.

Sept. 14.—Pain and inflammation still increasing, heat of limb very intense, fever high at night, no appetite, great thirst.

Sept. 15.—Extracted the seton; local inflammation and pain undiminished. The limb to be kept quiet; a Dover's powder to be taken at bed-time, an emollient poultice to the knee, and a dose of oil in the morning.

Sept. 16.—Fever abated, heat and tension of the part much assuaged. Re-apply the poultice and let him take a half soda powder, at intervals of two hours.

Sept. 17.—No more fever since last night. Swelling still very general, and some heat; a slight chill about 9 P. M., and profuse perspiration in the morning. Still continue the poultice, and let him take $\frac{1}{8}$ gr. sulph. morphine an hour before expected invasion of chill.

Sept. 18.—No fever last night; swelling, heat, and pain almost entirely gone. Envelope the limb in a moderately tight bandage and saturate it with a solution of acet. plumbi.

Sept. 23.—The size of the knee almost reduced to that of the sound one; destitute of pain and heat, and flexibility rapidly returning. Continue the bandage, and take gentle exercise in an open carriage every day.

He continued to improve rapidly, and he is at this time perfectly well.

Case II.—Daphne, *ætat.* 28, about six months since, was brought to me with her right knee slightly swollen, complaining of a seated pain about the inner condyle of the tibia; no fever, good appetite, general health pretty good.

I made local abstractions of blood at different times, blistered, and rubbed the knee with various stimulating ointments, applied tight roller bandage, and administered constitutional remedies of various kinds, but the pain and swelling remained the same. Having failed in making any impression upon the disease, on the 12th December, I determined to introduce a seton, and my associate, Dr. J. Harden, concurring with me in opinion, we performed the operation. The general contour of the limb was almost precisely similar to the preceding case; but upon plunging the lancet into the sac, about half a pint of rich synovia flowed. I abstracted the seton about *four days* subsequently to the operation, and the same train of symptoms supervened as we have detailed above, only of a much more violent nature. Nearly two months elapsed before she was enabled to walk, but finally the knee resumed its natural size; and she now can walk with facility, but occasionally complains of a slight degree of pain in the original spot. I believe that the simple evacuation of the contents of the sac would have created a sufficient degree of inflammation. Although there has never been a re-accumulation of fluid and the patient is comparatively well, yet I apprehend that the same results might have been attained with much less of suffering.

Remarks.—The introduction of foreign substances into the cavities of any of the joints has always been regarded, by the most skilful surgeons,

as *extremely hazardous;* for, from the violence of the inflammation and the high degree of constitutional irritation which necessarily follow, the most serious consequences are to be apprehended. It is of vital importance then, that we note accurately the phenomena of disease, discriminate between the different stages, and apply our remedies to suit the exigencies of each particular stage. By opening the cavity of a joint in the *first stage* of inflammation, we render a failure certain; but when the inflammation has advanced to the chronic stage, and the synovial membrane has become partially indurated, and the absorbents indolent, we can reasonably hope for success, as well as in cases where a salutary influence follows the injection of stimulating fluids into the serous sacs.

That the above are well marked cases of inflammation of *synovial membrane* resulting in effusion of fluid, we entertain not the shadow of a doubt; for *their history* and *symptoms*, sustained by *anatomical facts*, fully warrant us in the belief. The relative position of the bursa of the *ligamentum patellæ*, and the *subcutaneous bursa* situated between the patella and the fascia lata, with the *general contour* of the swelling, the pendent position of the patella, as it were *floating* in the *fluid beneath*, and almost *disappearing* by pressure, and the *form of the swelling* following *the course of the pouch of synovial* membrane situated between the tendon of the quadriceps extensor muscle and the front of the lower part of the femur, together with the absence of any pain or redness of the surface, show that the accumulation could not have been *elsewhere* but in the synovial membrane.

The course of treatment pursued, doubtless will be censured by some, for inconsiderate boldness or *rashness;* but, as the pathological developments in the first case were almost *unique*, we contend that extraordinary measures were demanded, particularly after observing the phenomena which succeeded the *first insertion* of the lancet—the evacuation of one pint and a half of *sero-sanguinolent* fluid, followed by almost immediate re-accumulation, and no pain or constitutional irritation consequent thereupon! Moreover, the most powerful topical applications, together with constitutional remedies, were employed with no permanent advantage; and we saw no alternative but in the employment of stimulating injections, or the introduction of a seton. Sir B. Brodie notices one case, the pathological condition of which simulated strongly our first case. He recommends the employment of topical depletion, epispastics, rubefacients, moxas, and sometimes the evacuation of the contents of the sack through a *small aperture*. We fulfilled these indications consecutively, with the exception of a moxa, but no advantage resulted. Constitutional remedies were also employed, but still the disease continued unchanged. Were we not then justified in resorting to any mode of treatment, which held out the least hope of saving the limb, and perhaps the life of the patient? The termination of each case was more favorable than we had anticipated, for we should have considered the patient very fortunate had he escaped with an *anchylosed* joint; but we enjoyed the gratification of seeing the *mobility* and *original strength* of the joint *almost entirely restored.*

Jan. 15th, 1844.

Additional Remarks on the same Cases. By John Le Conte, M.D., of Savannah, Georgia.

Mr. Editor:—Herewith I send you the details of two cases of disease of the knee-joint, drawn up at my solicitation, by my friend, Dr. Josiah

P. Stevens, of Liberty county, Georgia. His associate, Dr. Harden, says that when the first case was under treatment, he was fully under the conviction that the fluid was contained in the synovial membrane; but, upon a reconsideration of the subject, taken in connection with the successful issue of the case, he is *now* disposed to think that it might have been seated in some of the neighboring *bursæ mucosæ*. But I think that it can be easily demonstrated, that the character and relative situation of the tumor, are *anatomically inconsistent* with the supposition. There are but two *bursæ* situated on the anterior aspect of the knee: and their position is such as to preclude the possibility of confounding an accumulation of fluid in either of them, with that contained in the synovial membrane. It could not have been seated in the small *bursæ mucosæ*, which are situated between the *ligamentum patellæ*, near its insertion, and the triangular flatness of the tibia above the tubercle; *for it is placed too low down*. (Vide Horner's Special and Gen. Anat. 4th Ed. Phil. 1836. Vol. 1, p. 303. Also, Quain's Anatomical Plates, Am. Ed. Phil. 1842. Bones and Ligaments. Plate 27, fig. 8.)

The only remaining *bursa* in this region is a *subcutaneous* one, of a larger size, *placed between the patella and the fascia lata*, which extends over its anterior surface. (Vide Wilson's Human Anat. Am. Ed. Phil. 1843. P. 130. Also, Dictionnaire de Médecine, 2d Ed. Paris, 1833. Tome 5. Art. Bourses Muqueuses, p. 538. Par. M. Ollivier.) The last-mentioned *bursa* is more liable to be inflamed than any other in the body. A tumor in this situation is described in the New York Medical Gazette, Jan. 5th, 1842, in which Prof. Willard Parker is reported to have made a singular aberration from his usual anatomical accuracy; for he says: "But *over the patella we have no bursa*, and consequently this swelling must have some other origin." (Vide New York Med. Gaz. vol. 1, p. 404. N. Y. 1842.) Accumulations of fluid in the *patellar bursa*, have such a peculiar character as to render a correct diagnosis very easy. "It raises the skin from the patella, *so that the latter cannot be felt*." "A careless observer, judging from the general form of the tumor and the fluctuation of fluid, without noticing the greater redness of the skin and the *circumstance of the fluid being over, instead of under, the patella*, might mistake the case for one of inflammation of the synovial membrane of the joint itself." (Vide Sir. B. C. Brodie's Path. and Surg. Obs. on Dis. of the Joints. Am. Ed. from 4th Lond. Ed. Phil. 1843. P. 202.) In the cases detailed by Dr. Stevens, fluctuation was very distinct, and the patella was felt floating on the fluid, borne up by the distended synovial sac, and requiring some pressure to make it touch the condyles of the femur. In fact, the movable and floating condition of the patella, taken in connection with the characteristic form of the swelling, is *pathognomonic* of a preternatural accumulation of fluid in the synovial membrane of the knee-joint. There can be no question, therefore, that the cases under consideration were well-marked examples of what writers on surgery term "*Hydrarthrus*," or "*Hydrops articuli*" of the knee-joint.

With regard to the surgical treatment pursued in these cases, I must freely confess that its boldness seems to me to encroach so much upon *unwarrantable rashness*, as scarcely to be justified even by the extraordinary success which followed. Circumstances very seldom warrant the making of an opening into the joint in this disease; but excessive distension, in some long neglected cases, might certainly be an urgent reason for such an operation. Accordingly, we find that it has occasionally

been performed with success by several surgeons. An interesting example, in which circumstances rendered the operation justifiable, is related by Mr. James Latta, which terminated favorably after the evacuation of *twelve ounces* of serum from the knee-joint. (Vide System of Surg., Edin., 1795, vol. ii., p. 490.) Sir Benjamin Brodie enjoins the following important precautions, when the distended state of the joint has induced him to venture upon evacuating the fluid by puncture: 1st. In a thin person, if a few punctures be made with an instrument, a very little broader than a couching needle, by means of an exhausted cupping-glass, applied over the punctures, a large quantity of fluid may be easily abstracted without the smallest danger, and with no inconsiderable relief to the patient. But, while inflammation exists, the relief is not permanent, the fluid being rapidly regenerated, so that in a day or two, or perhaps in a few hours, the swelling is as large as ever. If, on the other hand, the inflammation be already subdued, the absorption of the fluid usually goes on so rapidly that any more expeditious method of removing it is unnecessary. 2dly. If suppuration has taken place in the joint (not in consequence of ulceration, but from the surface of the synovial membrane), a free opening made into it with a lancet will often be attended with the best effects." (Op. Cit., p. 28.) He relates an instance which terminated successfully after having drawn off two or three ounces of turbid serum by puncturing. (Op. Cit., p. 48.) In the cases of *suppuration*, in which a free opening with the lancet is recommended, the object is to obtain a speedy cure by establishing *anchylosis*. Hence, the most prudent method of proceeding is, to make "a puncture with the needle first, and allow a small quantity of fluid to escape, so as to ascertain its nature. If it be not simple turbid serum, but actual pus, the lancet may be used afterwards." (Vide H. Mayo's Outlines of Human Path., Dunglison's Am. Med. Lib., Phila., 1839, pp. 68 to 69; also Brodie, Op. Cit., p. 33.) The foregoing observations are sufficient to show that, although the operation of opening the synovial membrane of the knee-joint is considered highly dangerous, yet that eminent surgeons have recommended it under peculiarly urgent circumstances, provided certain *precautions* be taken in its performance. On the other hand, Sir Charles Bell declares that, in dropsy of the knee-joint, "As to opening the joint to evacuate the fluid, the proposal is ridiculous, as you can always cause the temporary absorption of the fluid by pressure. You gain nothing by puncturing but the danger of an uncontrollable inflammation." (Vide Institutes of Sur., Dunglison's Am. Med. Lib., Phila., 1840, p. 317.) Under any circumstances, the operation is most unquestionably very hazardous. Even in the small punctured wound which is made in the operation for removing loose cartilaginous bodies from the knee-joint, it is often very difficult to prevent the supervention of violent inflammation and suppuration; yet, in the first case detailed by Dr. Stevens, not only was the lancet *repeatedly plunged into the synovial sac, but a seton was actually inserted into the cavity of the joint!* For I have been assured that the catheter, armed with the seton, was passed through the wound made by the lancet, through the cavity of the sac, so as to protrude the skin on the inner side of the knee, above the patella, and, by means of an incision, was drawn completely through, and yet no serious consequences resulted therefrom!! I have already remarked that surgeons have frequently evacuated fluid from the cavity of the knee-joint; but, so far as I know, this is *the first instance in which a seton has been inserted into the synovial membrane, in this disease.*

In some chronic cases of this disease, Sir Benjamin Brodie recommends the use of issues and *setons* in the adjacent *integuments*, with a view of producing an *abatement of the inflammatory action*, by establishing a drain in the neighborhood; but he has never inserted a seton into the *synovial sac* of the knee-joint, for the purpose of *exciting inflammation*. (Op. Cit., p. 29.)

In *scrofulous diseases* of this articulation, Sir Charles Bell has procured *anchylosis* (which in the advanced stage is the only means of cure) "by passing a seton across the knee." But, on the third attempt, he lamentably failed. "Nothing of this kind should be attempted unless in desperate circumstances, where the patient is prepared to submit to amputation if the effect should be dangerous inflammation." (Op. Cit., p. 319.) More recently, M. Bonnet, principal surgeon of the Hôtel Dieu, at Lyons, states that he has derived the most favorable results from the employment of *iodine injections in scrofulous abscesses of joints*. He uses it in indolent abscesses, "unattended by puffiness (*gouflement*) of the cellular tissue, or thickening of the synovial membrane, and occurring coincidently with emaciation, &c., in children of a scrofulous habit, in whom the powers of the constitution are much enfeebled." (London Lancet, March 11th, 1843; Am. Ed., vol. i., 1842–3, p. 548; also, New York Journal of Med. and the Collateral Sciences, N. Y., 1843, vol. i., p. 133.) The use of such remedies requires great pathological discrimination.

I had an opportunity of conversing with the subject of the preceding case, Mr. S. Winn, a highly intelligent young gentleman, in June, 1843. His general health was very good; complained of slight weakness of the joint as compared with the other, but scarcely perceptible; mobility of the limb perfect; every step, however, was attended with an audible *crack or snap*, which attracted the attention of his companions.

The quantity of fluid evacuated, in his case, was very extraordinary, as much as *three pints* having been drawn off in two operations. In the two cases formerly alluded to, the *first*, Mr. Latta's, gave exit to *twelve ounces* of serum, while in the *second*, Mr. Brodie's, only *two or three ounces* were discharged.

It is very seldom that cases are met with, in which the fluid assumes a sero-sanguinolent character, as it did in this instance; although we are not without several parallel cases in our surgical records. Mr. Arnolt relates a case in which the cavity of the knee-joint was filled with a "tolerably thick pus, of a uniform reddish color, as if from an admixture of blood." In a patient, under Mr. Cæsar Hawkins, in St. George's Hospital, who died of inflammation and gangrene of the lungs, with pericarditis and hypertrophy of the heart, whilst laboring under disease of the knee-joint, "the synovial membrane of the right knee was full of a dark-colored fluid, not purulent, but having the appearance of a thick synovia, tinged with blood." (Brodie, Op. Cit., pp. 16, 17.)

As regards tumors of the Bursæ Mucosæ, a much bolder plan of treatment is usually warrantable, as they very frequently have no connection with the articular cavity. Mr. Latta has employed stimulating injections and setons in these superficial tumors with considerable advantage. (Op. Cit., vol. ii., p. 485.) Mr. S. Cooper cured a case of diseased bursa, by puncturing it, and introducing a tent into the opening. (Surg. Dic., Am. Ed., N. Y., 1832, Art. Bursæ Mucosæ.) Sir Benjamin Brodie recommends the introduction of a seton or tent into openings made in cases of enlarged bursæ, for the purpose of bringing on suppura-

tion, and thus preventing a further accumulation of fluid. Where the bursa is situated superficially, as in the case of the one over the patella, it may be extirpated with as much facility as an encysted tumor. (Brodie, Op. Cit., pp. 203–205; also, Mayo, Op. Cit., pp. 86, 87.) Professor Williams of Dublin and Dr. Houston, have cured several cases of chronic tumors of the bursæ mucosæ and synovial sheaths of tendons, by the subcutaneous division of the sac, and the subsequent application of pressure. (Braithwaite's Retrospect of Prac. Med. and Surg., Am. Ed., from 4th Lon. Ed., No. 3., 1841, Jan. to July, Art. xlv., p. 86, N. Y., 1743.) M. Velpeau treats various kinds of serous cysts, enlarged bursæ, &c., about the knee, in the axilla, breast, neck, and other parts, by *iodine injections*. (Braithwaite, Op. Cit., Mo. 5, Jan. to July, 1842, Art. lxxxi., p. 143.)

It may not be considered out of place to remark, in this connection, that M. Gimelle has found the administration of *tartar emetic*, in large doses, very efficacious in curing dropsy of the synovial membranes; causing complete absorption of the fluid, with abatement of all inflammatory symptoms. He has treated twenty-seven cases of dropsy of the joints successfully by this method. (Braithwaite, Op. Cit., No 2, July to Jan. 1840, Art. xxxii., p. 80.)

I fear that the interest and novelty of the subject have induced me to overstep the legitimate latitude of a *casual* correspondent.

I remain yours very truly,

JOHN LE CONTE.

Savannah, Feb., 20th, 1844.

ART. VI.—*Thesis on the Use and Abuse of the Saratoga Waters. Presented for the Degree of Doctor in Medicine.* By J. J. DELAMATER.

To the Professors of the Medical Department of the New York University.

GENTLEMEN,

IN compliance with the requirements of this University, I have thrown together a few reflections on the use and abuse of the Saratoga waters, in connection with some general remarks on their peculiar virtues, and the classes of diseases susceptible of benefit from their curative effects. I am aware of the errors in judgment which would be likely to attend the convictions of a student of medicine, on practical subjects; but having spent much time at Saratoga, during a few years past, I have had at least an opportunity to form a proper estimate of the therapeutical powers of the waters; and in not a few cases, I have seen the sad results of their indiscriminate use.

Aware of the slight attention this subject has received from the Medical Profession, it was very natural that, in the selection of a subject for this occasion, I should fix upon this; and it will be perceived that I have confined my remarks quite exclusively to the remedial effects of the waters. There are circumstances, which unquestionably modify these effects, among which, as most prominent, may be noticed a change of air, the necessary journeying by those from a distance, and the relief from the care and anxiety of business, which attend a pilgrimage to the Springs. These subjects are of much interest to the medical practi-

tioner in all the aspects of disease, on account of the influence they exert in various affections, more especially in those of a chronic nature; and it would assuredly prove a rich field of contemplation to endeavor to point out their modifying influences, in connection with these waters. Had I ventured upon so wide a field of investigation, this Essay would necessarily have been extended beyond the limits proper for such an occasion. I may, in conclusion, justly remark that all the advantages of these curative aids, both in purity of air and relief from mental ennui, can be with as much certainty experienced at Saratoga as elsewhere, furnishing still an additional claim to the attention of the community. Unfortunately for those who have ascribed the whole merit of the benefit of a resort to Saratoga, to a change of climate, I may properly mention in this connection that those benefits have been experienced, in an almost equal degree, by those who have for years lived in the immediate vicinity of the Springs; and further still, that the deaths which occur at that village, which are few in proportion to the population, are very generally produced by a class of diseases to the cure of which no one pretends that the influence of these waters extend. With these few introductory remarks, this thesis is very respectfully submitted by

J. J. Delamater.

New York, February 2, 1844.

Among the hundreds who annually resort to this distinguished University, to draw instruction and science from so rich a fountain of learning and experience, it may readily be supposed, that the more ordinary subjects embraced in the researches of the student of medicine, have been yearly discoursed upon by the candidates for graduation, until the common characteristics of disease, the diagnosis, the prognosis, and the treatment adapted to our physical natures, have become uninteresting by repeated description: for it cannot be hoped that the mere tyro in the profession, who has hardly stepped his inexperienced foot upon the threshold, and has only looked from a distance upon the immense field spread out before him by the experience, the talent, and the indefatigable exertions of those worthies who have preceded him, could add anything new and striking to the oft-told history or pathology of disease.

I have, therefore, concluded that a slight deviation from the beaten track might not be unadvisable on this occasion; and with this conviction, I shall attempt a description of the waters of Saratoga and their various medicinal virtues, with some remarks on the use and abuse of them. In this hasty sketch, I shall endeavor to keep within the bounds of fact—the whole being the result of a very careful attention to their varied effects, during the past season, a portion of which was spent at Saratoga, in the medicinal use of the waters, and also in investigating very numerous cases with the history of which I became familiar. Saratoga is rich in fountains, and is the resort of a large and yearly increasing array of pilgrims from this and other lands; for the gaiety of Saratoga and the far-famed virtues of its waters, draw annually together thousands to drink from the sparkling streams which gush forth in such abundance in its midst, holding in solution the medicinal virtues of many of the most highly prized articles of the Materia Medica, in a state of union and combination, which increase in twenty-fold proportion their active powers.

And here, let me premise that these medicated agents labor under unwonted obstacles to their complete success—obstacles which, in ordinary circumstances and locations, would be pronounced more than a counterpoise to all hoped-for benefits. Thousands of the population of our cities and large villages, the wealthy and the dissipated, are there, with constitutions broken down, or much impaired by confinement, with digestive powers weakened by indulgence. Without self-denial enough to correct these pernicious habits at home, they hurry off to Saratoga, when the annual visiting season arrives, hoping that, forsooth, some magic charm will there be exerted upon them, altering the fundamental principles of their nature—an influence so potent as to overcome their own exertions to destroy themselves—and which will restore them to health and comfort in spite of all their own efforts to clog the wheels of nature. What, on the contrary, ought to be expected, but that here, where all the bounties of nature, which can tempt the fancy or gratify the taste, are offered in such rich abundance; where the contributions of all lands swell the list of luxuries—the loaded tables spread out before the visitor; what else, I say, could be expected, but that all the symptoms of impaired health would be greatly aggravated? Does the slightly indisposed, while there partaking of those powerful medicinal agents, subject himself to the same restrictions, as to diet and exposure, which his home physician would impose upon him if treating him for the same disease? By no means; but, surrounded by luxuries innumerable, he gives full play to all his desires, eating and drinking in far greater excess, and of much more health-destroying viands, than he would dare partake of at home, if in the full enjoyment of health; trusting to the powerful assistance of these waters, to carry the system harmless through a host of dangers, and even more, to restore health and bloom to the wan cheek, and elasticity and vigor to the tottering frame. And let it ever be remembered, as one of the crowning laurels of these waters, that many a one of these self-indulgent visitors has had his dreams of health more than realized, and that multitudes have been sustained through so severe a tasking of impaired physical powers; and, after weeks of indulgence, instead of finding a stranger's grave, they have been restored to their homes in as comfortable a state of health as when they left to visit these fountains.

At this point in our remarks, it may not be inappropriate to review, in a general manner, the curative agents associated in the performance of the many wonderful results which have, year after year, given these waters a more extended reputation, and established them so completely in the confidence of the world. So great a solvent power does water possess, that it is rarely in nature found free from substances held in solution or suspension. When the quantity of such substances is so great as to impart a peculiar flavor, and, when taken into the system, a medicinal effect, the water is termed a mineral water. Of mineral waters there are several classes, receiving a distinguishing name from the most apparent quality imparted to the liquid by the substances held in solution or suspension.

Thus has arisen a diversity of names for the mineral waters of the world: those possessing a leading proportion of carbonic acid have been called acidulous; those where iron is the most prominent characteristic, chalybeate; where the purging salts most abound, saline; while sulphuretted hydrogen imparts the name of sulphurous. Several of these prominent qualities are sometimes associated in the same water. Such is the case

at Saratoga, where the first three classes are united, constituting an acidulous-salino-chalybeate water.

The waters thus characterized abound through a valley nearly twenty miles in length, here and there gushing forth through the superincumbent strata of rock in inexhaustible quantities. At the village of Saratoga, these springs have been found in the greatest abundance, and with properties far superior, in the treatment of disease, to those in any other portion of the valley. The most distinguished of these fountains are the Congress, the Putnam, and the Pavilion. Of these, the Congress spring takes the preference in the treatment of that very numerous class of diseases requiring cathartics, antacids, and diuretics; and it is by far the most general place of resort of the visitors at Saratoga. This spring was discovered in 1792; and, from that time to the present, it has been gradually gaining in reputation and confidence. The water, when first dipped from the spring, is lively and sparkling, and it would be perfectly transparent were it not for the air-bubbles which rise thick and fast from its midst, imparting to it a slightly-opaque appearance. Its saline and gaseous qualities are readily perceived by the palate, imparting a slightly pungent taste; but, when taken by those accustomed to its use, it forms a highly-prized beverage. So much attached to it do some become, as to make annual journeys from distant portions of our land, to drink from so delicious a fountain, even when no disease of the system requires its healing aid. By a very careful analysis of the water of the Congress spring, it has been found that it holds in solution and suspension, chloride of sodium, carbonate of soda, carbonate of lime, carbonate of magnesia, carbonate of iron, sulphate of soda, iodide of sodium, bromide of potassa, silica, and carbonic acid, of which distinguished list of medicinal agents, the saline, antacid, and iodide qualities, are the most conspicuous, the iron being less in quantity than in any other of the springs. When, therefore, these more prominent remedies are called for, no agent can be more happy in its kindly influences than this water; but, should a lax and debilitated habit need bracing up and invigorating, recourse should be had to the more tonic Putnam and Pavilion springs.

At this stage of our subject, it may not be out of place to make a few general remarks on the adaptedness of the various substances held in solution, in the Congress spring, to the cure of disease, touching only on the general characters of the diseases in which their application has been curative, in the past history of medical practice, and among the most able practitioners of the art medicinal; and, in this general review, we shall speak of the varied substances, in the order of the very admirable analysis of Dr. Chilton, of this city. First in order comes the chloride of sodium. This article is too well known to need much remark. It is one of those tonic stimulants which have been sought out by the whole animal family. As a condiment in daily use by man, its properties are very extensively known, and equally well known are its antiseptic qualities; but it possesses other properties, as a medicinal agent, which as yet have not been very generally appreciated. It is both cathartic and emetic, and also a general tonic, when given in doses of from two drachms to one-half an ounce; its cathartic powers are quite active, and while it fulfils all the ordinary indications, it, at the same time, stimulates and gives vigor to the digestive powers, and in no sense does it ever debilitate. As an emetic, it is of a mild and unirritating class; while, at the same time, in doses of from one-half an ounce to an

ounce, it is frequently prompt and effectual, never debilitating, and generally invigorating the stomach. As a clyster, it is in very common use, forming one of the most simple and, at the same time, useful ones, mentioned by authors, as it promotes not only the peristaltic action of the muscular coat of the intestines, but, in cases of debility, soon establishes the natural movements of the system. As an external application, its powers are very generally known, such as stimulating the skin and promoting diaphoresis, and thus drawing off, from the internal organs, the congestive accumulations of blood, which so often disturb their functions, and, if neglected, produce severe, and often complicated, diseases of the system; and, when daily applied in cold ablution, they prevent those frequent colds from the changes of the weather, to which so large a class of mankind are subject. To those afflicted with the scrofulous diathesis, it is an application of almost inestimable value, frequently, as in a case which has lately come to my knowledge, by strengthening the system and, at the same time, protecting it from the influence of cold, arresting disease when it has reached the very verge of tuberculous phthisis, and raising the corporeal powers to vigor and elastic health. Such is the nature of common salt, and so powerful is a remedy that we are accustomed to overlook, because it is so common.

Carbonate of Soda, the next in order on the list, is antacid and resolvent. It is given very generally in all those dyspeptic diseases, dependant upon the acidity of the primæ viæ; and it is also prescribed very frequently in gout and as a resolvent of the various uric acid concretions. It is also asserted by various authors of repute to possess the power of arresting the progress of scrofula and bronchocele. In the latter disease, one of the most able physicians of Geneva, in Switzerland, considers it more efficacious than iodine itself, although his views in this particular have not yet been confirmed by the profession in general.

The Carbonate of Lime, the next in order on the list, is strongly alkaline and antacid, and peculiarly adapted to that species of diarrhœa, depending upon an acid state of the primæ viæ; for it forms no combinations with the contents of the stomach which are at all purgative.

In the Carbonate of Magnesia, the next in order, we have an antacid, adapted to another state of the system, namely, when acidity is to be corrected, and at the same time costiveness to be overcome. The compounds of the magnesia with the acid of the stomach, are sufficiently cathartic to regulate the bowels; and, in the ordinary administration of magnesia, if no acid exists, we have only to follow the magnesia with lemonade, and our object is accomplished. It is also antilithic, in those cases in which uric acid is too abundant.

The Carbonate of Iron, the next in order, is one of the very best chalybeates we possess, as it is applicable to all the various diseases in which iron is indicated as an alterative, tonic, and emmenagogue, in cancer, neuralgia, chorea, and in that state of the blood in which its coloring matter is deficient. In fine, the general voice of the profession has pronounced it one of the most valuable remedies that we possess. Next, we have the Sulphate of Soda, cathartic and antiphlogistic in its effects; and although valuable as a remedy, it is now nearly superseded by the sulphate of magnesia in general use; the sulphate of magnesia possessing very similar powers, and at the same time, being far less unpleasant to the taste. Iodide of Sodium, still lower on the list, is one of the combinations of iodine, which possess very many of its specific powers. No

class of remedies have, of late years, excited more attention than iodine and its compounds; and in scrofulous swellings, in glandular diseases, in thickness of the tissues, and affections of the joints, its powers are very generally commended, both internally and externally. It is, at the same time, a powerful stimulant of the digestive apparatus; in fine, the curative influences of iodine are so varied and far-reaching, that an attempt to do anything like justice to it, in so short an essay, would be presumptuous. Its discovery and introduction into general use, was one of the most valuable contributions to the materia medica, which the science of medicine has for many years brought to light; and as its various powers are more and more investigated, its reputation is the more decidedly advancing. Thousands can, indeed, already bless the day, which gave to them iodine as a remedy, for with it came restoration often of long lost health. The Bromide of Potassium has gained some little reputation in the treatment of glandular diseases, but its use has as yet been so limited, that the extent of its powers is not actually ascertained; but that it is of much value in the art medicinal, many able physicians have borne very ample testimony. Carbonic Acid, the omega of the list, is diaphoretic, diuretic, and anti-emetic, grateful in a beverage, a medium of solution of some of the other qualities of the waters, and a powerful allayer of gastric disturbance. As it removes the unpalatable taste of other substances in solution, it thus overcomes one of the great impediments to the administration of some very valuable remedies, and renders them, at the same time, less irritating to the stomach.

How potent and desirable a list of pharmaceutical agents does analysis exhibit pervading these waters, and happy indeed may it be considered for the health of the country that no depreciation has been detected in their qualities, although some of them have been known to the community for more than half a century. Indeed, a late analysis of the waters of the Congress Spring, since kerbed anew, shows conclusively that its active qualities have increased full one-fourth—some of the most desirable properties being the ones in which this improvement is the most perceptible. Blessed beyond example in so rich a source of health and wealth to her citizens, with a power unequalled of imparting relief to the physical maladies of her countrymen, with a bracing and balmy atmosphere, and a village rich in the varied attractions which can entertain and make happy, long may the crystal streams of Saratoga remain a joy and a blessing to our land!

Let us now take our stand near the Congress fountain, one of the twenty with which this valley abounds. See the thousands pushing and jostling each other aside to get within reach of the prized waters. Glass after glass does each one quaff, without regard to the difficulties under which he is laboring, entirely ignorant whether his disease requires an alterative, a diuretic, an antacid, a cathartic, or a tonic, only intent upon drinking the utmost quantity of water; and when the loaded stomach refuses to receive more, promenading about until more room can be obtained, again to go through the same process of drinking. After three or four successive scenes of a similar nature, having partaken, in many instances, of at least three quarts, he hurries off, at the ringing of the bell, to partake of the morning meal; again, at various times and seasons during the day, to pursue the same heedless course, only intent upon drinking the utmost quantity poor human nature can sustain.

To those acquainted with the process of digestion and the laws which

govern the assimilation of food, it need not be told that such an oppressive accumulation of fluid in the stomach, at the time of partaking of a meal, would most effectually arrest and retard the action of the digestive powers, by weakening and diffusing the gastric juice, and preventing the very essential chemical action which it should exert upon the solid contents of the stomach. Suffice it to say, that one who would tell you at home, that he does not partake of any fluid at or near the time of a meal, will here sit down, without any anxiety on the subject, to a hearty breakfast, fresh from drinking eight or ten glasses of spring water.

There is a state of the system which may, from want of a better name, be called the *avant-courier* of disease. It constitutes the premonitory warning of a long catalogue of organic affections, generally of a chronic nature—a class, which, when fully established, is most difficult of cure. To this state of the system, a large class of persons is subject. It commences with a slight uneasiness of the bowels after each meal. The one or perhaps two daily evacuations to which the patient has been for years accustomed, are interrupted in frequency. The difficulty appears to lie in a want of tone of the abdominal canal, producing no interruption in the number of daily discharges, but rather a diminution in the amount, leaving an accumulation in the passages of a large amount of the more coarse and irritating fecal matters, which have passed, in an imperfectly digested state, from the stomach and the digestive apparatus. This accumulation clogs the natural channels of the system, giving rise to a constant excitement of the mucous lining of the canal. The patient is not, in the common acceptation of the term, sick, but he feels a continual or periodical uneasiness, and not considering himself sufficiently out of health to require a physician's advice, the disease progresses, until some of the complicated, and perhaps irremediable organic, embarrassments are fastened upon him. Irritation has produced a disease of the stomach, the liver, the kidneys, or the bowels, and at last a long application to judicious medical treatment alone can give promise of help. To one suffering or disturbed by the earlier symptoms above mentioned, the Saratoga waters hold out very strong hopes of recovery; and even when he has reached the more serious subjection to organic disease, a well directed course of these waters holds out perhaps fully equal hopes with any other plan of treatment. Let him commence at first with a well selected cathartic, adapted to the state of the system, to be followed by a very thorough course of the waters, continued for several weeks at least, taking occasionally, when the secretions are deranged, a blue pill or some similar auxiliary at night. In this manner, the disease might be overcome. Should the same train of symptoms recur, the same course might be pursued; and by degrees, the susceptibility to disease would be lessened, and in very many cases entirely overcome. We have already remarked that where an evacuation of the contents of the intestinal tube is indicated, and at the same time it is desirable to subdue, or at least not augment, the irritation, this remedy is the one which holds out the greatest promise of success. Its superior efficacy in such cases is due to the slight excitement it produces in the system—a feature which distinguishes these waters from most of the other remedies of the Materia Medica, as usually prescribed. Moreover, they do not interfere, if taken at seasonable hours, with the digestive process; on the contrary, they augment the powers of the assimilating functions, and give, at the same time, tone and vigor to the system; and when per-

severed in for months and even years in moderation, they barely produce any injurious effects. True, it is by many physicians on the Continent asserted that the saline particles in the water coming in contact with the mucous linings, produce irritation, but this has not been the case usually at Saratoga. It may be that some peculiar property exists in these waters preventing the ordinary irritating effects, or perhaps they are rendered more easy of digestion, and few of the particles pass, in an unchanged state, through the intestinal canal. At all events, observation has fully attested that, in quite severe irritation, these waters may be used for months in a rational manner, with the most happy results to the whole system.

A large class of visiters go to the Springs with the most implicit confidence in their healing powers. They have heard that the waters are most potent health-restorers. Their friends, many of them languid and feeble, have experienced their health-renovating powers, and why may not they anticipate the same results? Inspired with phantom hope, they fly with railroad speed, the sooner to be on the way to recovery, and drink with full assurance of relief, until, surrounded by thick-thronging troubles, growing weaker and still weaker, with all their symptoms aggravated, until ultimately they despair of help. Perhaps at this moment some kind friend, for there are always those on such occasions who stand ready to impart knowledge and advice on subjects of which they are themselves profoundly ignorant, steps in and solves the reason of the want of success. "You have not drunk enough," says the kind adviser. Depressed in spirit and weakened by disease, the poor invalid has not had courage to encounter more than some ten or twelve glasses each day; the dose must be doubled; and now hope again beams upon the countenance of the sick man, and with his little remaining strength, he makes the effort to atone for past inertness and want of vigor in his course, by renewed ardor in the use of the healing remedy. But health eludes his grasp, and with each renewed effort, the powers of the system give way with fearful rapidity. With little remaining strength, he hurries home to die among his friends, the unhappy subject of a gloom and despondency, which, with ten-fold speed, are hurrying him along that downward road, which terminates in the sepulchre. Others of this class, when they perceive the powers of nature giving way, under the use of the waters, by the advice of some more judicious friend, as from their own sensible convictions of its necessity, call to their aid the long experience and skill of some of the able medical advisers, with whom Saratoga is blessed; and setting out aright, with a compass to guide them, those very qualities of the waters, which were undermining their few remaining powers, are so controlled and made subservient, as to prove the most direct invigorators and health-restorers; and finally these invalids return to their friends, fresh trophies of these healing waters.

Still another class, and I would that it were more numerous, reach the Springs fully impressed with the importance of partaking of the medicinal agents found there, in a regular and sensible manner. Instructed by judicious physicians at home, convinced by the sad results of other cases within their knowledge, or impressed with the character of the pharmaceutic powers found by analysis concentrated in the waters, they know that, like other remedies, applied in the varied treatment of disease, judicious and careful advice from those experienced in directing the use of them, can alone furnish any reasonable hope of benefit. On arriving

at the Springs, they call to their aid some physician who has made it the business of years to study the medicinal effects of these waters; and if, on a careful review of the case, the use of the waters would give promise of proving beneficial, a plan of treatment is proposed to them, by strictly pursuing which, they may hope for all the advantages of the waters, and at the same time avoid all the risks of their abuse.

An opinion has been very generally spreading through a certain portion of the community, during the last few years, that these fountains are the universal panacea, adapted to all the varied ills physical man is heir to—a spring of life, giving health and vigor to all who repair to them. Varied and far-reaching as are the ills which may hope, by judicious management, for amelioration here, no intelligent spectator of the concourse of visiters can fail to see that there are cases beyond the reach of this remedy—cases in which these waters, if their use is persisted in, would produce most disastrous results; and further still, it must be admitted that these classes of disease are not few in number, nor restricted in the list of victims yearly sacrificed on their various altars. Some of these diseases are, too, of a class in which the deluded victim hopes on, even amid injudicious and hurtful remedies, constantly improving in his own estimation, but never better; and thankless and afflictive is the task of him who should nip the bud of hope. Many such, doubtless, are seriously injured; many, perhaps, are yearly hastened to their graves by these fountains. Had this class, even on arriving at the Springs, sought competent advice, months and perhaps years, might have been theirs on the shores of time, which have been stolen from them by the very remedies, in the pursuit of which they were so sanguine of relief.

What scientific or sensible man is not astonished at the rage for quack nostrums, which characterizes the present age, and what philanthropist does not lament the wide-spread mania for panaceas, which is blasting, as with mildew, the hopes and prospects, yea, the life itself, of thousands of deluded victims? The pharmaceutical powers contained in these waters, are exceedingly valuable; and when properly administered, they will do much toward assisting the powers of life, in the struggle with the great adversary of mankind. But, cast loose upon the world, like the panaceas, to take their place in every household, as a cure-all, to be administered in every state of the system, in chronic and acute, in febrile and inflammatory, as well as diseases of debility, who can estimate the injuries inflicted, or call the victims any less than legion! Utterly destitute of any knowledge of the anatomy or physiology of the human system, and equally so of the effects of medicines, one of these panacea-prescribers—blind guides they may be very appropriately called—leads another, classing all who recover in spite of the remedy, as trophies of its curative effects, while all who die under the infliction, are cases which no remedy could control. Who can tell the fearful results of, or point out the limit to, this evil! While mankind will place implicit confidence in all that the ignorant nostrum-seller asserts, and the no less ignorant, but less guilty, partaker of his nostrum, confirms, what hope can be reasonably indulged, that this flood of death will stay its course, and that science and skill will again maintain their deserved character, among the mass of mankind!

The very habit of relying upon a panacea, begets still another habit, namely that of almost constant dosing for all the slight pains and aches to which man is liable; and which would, if left to themselves, be very prompt-

ly remedied, by the vis medicatrix of the system. This habit so much impedes the complicated wheels of our physical nature as to ensure the continuance of the same, or the generation of a new and more alarming train of evils. Among this class may justly be ranked the whole array of mineral waters, when indiscriminately used—better only, for the reason that their characters are better known than those of the quack nostrums; and those who will resort to their use without competent advice, must expect to reap some of the sad consequences of their folly. There is a lamentable ignorance among practitioners of medicine, and more particularly country practitioners, on the subject of these mineral waters. They have heard of the springs and the benefits resulting to invalids from their use, and straightway they recommend to some afflicted patient, who trusts to their advice and counsel, and on whom perhaps they have exhausted their catalogue of remedies in vain, to visit the Springs. "Saratoga," says the physician, "is doing wonders—and perhaps you may be benefited by a short stay there." Knowing only that there is such a place as Saratoga, and that it is thronged with health-seekers without any definite knowledge of the principal agents impregnating these waters, he sends forth one who has committed his life to his care, without chart or compass, to an experiment which may prove a final, and a fatal one. True, it may be said, that if the Physician were perfectly acquainted with the analysis of the springs and the minerals that the waters hold in solution, he could not safely give instructions as to their use, from want of any certain knowledge of the powers with which these agents would act when dissolved, or from ignorance of the modifying power of secret agencies, not yet discovered by analysis; for, that certain substances do exist in mineral waters which have as yet eluded all chemical tests, is acknowledged by competent authority—and this fact no one will feel at liberty to deny, who has marked the very extraordinary, and not yet accounted-for, energy, with which these waters act upon the human system. In truth, it cannot be doubted that one grain of iodine or of iron contained in this solution, is fully equal to ten or twenty grains introduced into the system in any other known manner. Analysis, therefore, although it may throw some light on the class of diseases which would be likely to receive benefit from these remedies, could not be a safe criterion by which to prescribe their use; and he, only, who has had opportunities for watching their usual action, in a long series of diseases subjected to their influences, could safely say how far it would answer to go, and assign the limits beyond which it would be hazardous to venture.

Tell me not that I am making a too serious matter of a harmless agency. Would the skilful and scientific physician, who, after racking his brain, in vain, for further remedies at home, yearly sends numbers of complicated diseases, as a *dernier ressort*, to these fountains, acknowledge that he only sent them to a negative remedy, to undergo a mere milk and water treatment? The physician who doubts the potent influences of these waters, for good or evil, pronounces his own advice to his patients in severe and intractable cases—to try the waters, both fraudulent and inexcusable. That they do possess power for good, many a feeble frame, for years a victim to disease, now buoyant—many a wan cheek, now blooming with health—and many a sunken eye, now sparkling and bright—can bear record; and could the after history of the health-seekers, who have returned disappointed and enfeebled to their homes, be traced backwards, from the charnel-house, it would be fraught with sad

memorials of the destructive agency which gave a new and irresistible impetus to the downward course of disease. Are there then no cases in which so potent a remedy as iodine might give an unhappy bias to disease? Can so powerful a tonic as iron, in large doses and in the most effective form, be in all cases given with impunity? Do energetic cathartics never do harm, and do perseverance in diuretics never prove detrimental? Then may these waters, possessing all their combined powers, be indiscriminately used, and no unhappy results be anticipated. The water of Congress spring, when taken in liberal quantities, will generally act as a cathartic, or in less quantities, slightly move the bowels. When a cathartic effect is desirable, the water should always be taken in the morning; and for this purpose, six or eight glasses, taken at least an hour before breakfast, will generally prove sufficient. Commencing quite early with two, or at most three glasses, and after a suitable amount of exercise, repeating the glasses until the requisite quantity shall have been taken. When this quantity fails, as it often will at first, to move the bowels before breakfast, some other cathartic of a kindred nature should be conjoined, to ensure an operation. After a few days at most, the water itself will act without assistance, and even in diminished doses. To dispense with the great quantity which is sometimes necessary to produce catharsis, and especially in those irritable cases where the quantity of the fluid produces disturbance in the system, and where even the milder adjuncts of the Materia Medica produce gastric disturbance, a plan might be adopted with very manifest advantage, which has long been pursued at the mineral springs on the Continent and in England. The water could be concentrated by evaporation to such a degree that a small quantity of the concentrated water, added to the first glass taken in the morning, would be sufficient to give the necessary cathartic effects. After one or two thorough evacuations, the water should be left to its legitimate effects, only so regulating the quantity as to produce one or two movements of the bowels each day. If the alterative influences of the water are required, two glasses taken before each of the daily meals, and perhaps also before retiring for the night, would in most cases be the judicious course; but very often associate remedies would be imperatively called for, to regulate and assist the operation of the waters. It is not unusual among the physicians at the Springs, in many of the cases requiring the alterative influences of the waters, to prescribe at the same time either minute doses of blue pill or hydriodate of potash; and in very many cases, it is done with the most manifest advantage. It has already been mentioned that, as some of these springs are strongly impregnated with iron, they are, therefore, tonic and stimulant in their effects, the influence of the tonic being far more potent, when the water produces no catharsis.

Those of plethoric habit or who are laboring under diseases of even a slightly phlogistic nature, who drink the waters without experiencing their cathartic effects, and who use no other aid to evacuate the bowels, are apt to suffer from strong determination of blood to the head, fullness, and throbbing of the carotid and temporal arteries, with hard full pulse, flushed face, and sometimes dimness of vision, constituting many of the symptoms of approaching apoplexy. Discouraged and affrighted, as well they may be, by these effects, they fly the Springs as agents of evil to them, seriously injured by the trial. Had such patients, even at

that point, had the excitement and the general plethora of the system reduced by blood-letting or some other competent antiphlogistic course, under the judicious advice of some intelligent medical counsellor, all these troubles might have been removed, and the valetudinarian have been most essentially benefited by an after course of the waters.

Among the pilgrims to this shrine of health, may be found a numerous and constantly increasing class of the wealth, the beauty, and the talent of the land, who have fled from the noise, the tumult, and the midsummer heat of a city, or from the pestilential diseases of Southern climates, to this most gay and fashionable watering place, attracted by the balmy air and the intelligent society congregated at Saratoga. Here they spend the few months of the visiting season, promenading through shady walks, reclining on soft ottomans, or circling through the mazy dance, variegating the scene by an occasional excursion to Saratoga Lake, or the Lake of the Silver Waters. Even to this class, a sojourn at the Springs is not without benefit; for, in the early morning, many, who at home would hug their pillows until near midday, are up, and enjoying the invigorating morning air, walking through the highly ornamented grounds to the inspiriting tones of a rarely excelled band of musicians, and occasionally sipping a glass of the delicious waters; and thus is debility transformed into vigorous strength, and the paleness and languor of indulgent ease, into the elasticity and bloom of beauty.

Could these health-giving fountains be used with judicious care—could the waters, like the articles which impart to them their virtues, be prescribed, and their effects overlooked by competent medical advisers, how much greater a blessing would they prove to the community!* Thousands are now yearly invigorated and restored to health by them; and if used aright, thousands more, who are only momentarily benefited, or absolutely injured, might experience the same happy effects! The tide is setting at a rapid rate toward Saratoga, and could the physicians of our land become acquainted with the varied adaptedness of these waters to the diversities of disease, and could they mark the rapid improvement of those who have been suffering for years under unyielding chronic complaints, and more especially diseases of the digestive organs, the yearly visitants would be doubled and trebled, until scarcely a village or a district in our land would remain unrepresented. Let medical men learn to send their patients to the care of some scientific physician at the Springs; and among the twenty fountains with which Saratoga valley abounds, with essentially differing waters, an agent may be found which will not fail to give relief to thousands, who would otherwise sink into a premature grave.

Would the invalid, whose case is susceptible of benefit from the use of these waters, and who possesses the requisite physical strength, come here with the determination to use his privileges aright—would he rise at early dawn and repair to the fountains, and amid the surrounding thousands, all life and wit and gaiety, drink of the sparkling stream—then wander about the shady avenues and walks until weary of exer-

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* In their renovating influences, they would perhaps approach nearer than any others, to the realization of the vision of the far-famed and long-sought fountain of rejuvenescence, pictured forth in such glowing terms by Ponce de Leon, and sought after with so much enthusiasm by the believers in the reality of this delusive phantom of a chivalric but disordered mind.

cise; and after a due season of quiet, partake of the morning meal, plain and simple, but nourishing, throwing aside all the superfluities and luxuries of the table and the dissipations of the bar-room; then with due discretion, pass the day in agreeable exercise, temperate in all things, and daily using properly the very delicious baths, prepared here in such abundance, how many would have cause to thank a kind Providence, for this instrumentality in restoration to health and strength! And what multitudes now in the morning of youth, whose sunken eyes and emaciated forms mark the touch of the destroyer, would live to shine in the saloon and private circle, the joy of their friends and the ornaments of society!

PART SECOND.

Critical Analysis.

ART. VII.—*Fifth Annual Report of the Registrar-General of Births, Deaths, and Marriages, in England.* Second Edition, revised and corrected. London: 1843. 8vo., pp. 604.

THE interest and value of these Reports have augmented every successive year in a geometrical ratio; and this last one is a production rich in results, not only as regards the public health and the development of medical principles, but in reference to many of the hidden laws of political economy, and especially in the construction of a *National Life Table*, on which assurance and some other societies base their complex operations. But we will here confine our analysis to what is more strictly medical.

In our own country, it may not be generally known that there is one State, Massachusetts, which has a registration of births, deaths, and marriages, with the specified cause of death, based, in a great measure, upon the details presented in that of England. Although the results of the two years in which it has been in operation are not deserving of confidence, yet it is a noble enterprise every way worthy of being prosecuted. As in England, where the first annual registration was of the most discouraging nature in consequence of its deficiencies, so it will be found that in Massachusetts, as is proved by the much-increased correctness of the second annual Report, there will be an improvement in a geometrical ratio. Indeed, it becomes the State of Massachusetts, in view of her advanced social condition, to set this commendable example; for, when it shall be there once in successful operation, it will gradually be extended over the other States, until, finally, we shall realize the grand desideratum of a *National Registration of births, deaths, and marriages, with the causes of death.*

The following extract presents, in a condensed form, the state of the public health of England for 1841:

"The number of deaths," says William Farr, Esq., to the Registrar-General, "registered in the year 1841 was 343,847, less by 15,787 than 359,634, the number registered in 1840. The deaths were most numerous in the winter, but there were considerable fluctuations in the mortality of winter, and of the other seasons in the four years, 1838–41. As this is discussed in the Report, I shall only subjoin here the temperature of the several months in the year, deduced from the observations at the apartments of the Royal Society, Somerset House, London:—

MEAN TEMPERATURE.

Months.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
1838	31	35	44	45	53½	61	63	63	57	52	43	40½	48.9
1839	39	41	41	43	53	62½	62	62	58	51	46	40	49.9
1840	40	39½	39	48	..	63	62	65	57	49	46	35	50.0
1841	36½	37	49	50	60	61	62	64	59½	52	45	43	51.7
1831–40	38	40½	42	47	55	62	65	64	58	52	44½	41	50.76

"The temperature of January and February was below; that of March April, and May, above the average. The mean temperature of the year was 2°·8 above that of 1838.

"The mortality was ·001289 less * in 1841 than in the previous year. In 1840 out of a million living 22,878 persons died; in 1841 out of the same number living 21,589 died. Of the decrease, 898 in the 1289 was in the *zymotic* class of diseases. I use the term 'zymotic' here for the reasons assigned in the Appendix to the Fourth Report, and, because independently of any hypothesis, a simple designation like this, of the first group of diseases, is more convenient than the periphrasis 'epidemic, endemic, and contagious diseases.' It is a property of zymotic diseases to prevail more at one time than at another; to become epidemic, or endemic, or contagious, in certain circumstances; but as their essential nature does not alter, they have been invariably classified under the same heads. The epidemic character of the diseases of the class has been exemplified very remarkably by scarlatina which raged with increasing severity, until 1840, and continued the prevailing epidemic of 1841, though it had then begun to decline:—

	1838	1839	1840	1841
Deaths by scarlatina, ...	5,802	10,325	19,816	14,161

"14,161 persons, principally children, died of scarlatina in 1841; and 19,816 had died by this malignant malady in 1840; the decrease was 5,655.

"*Measles* had been epidemic, and destroyed 10,937 lives in the year 1839; the deaths from measles in 1841 were 6894. *Small-pox* was fatal to 16,268 persons in 1838, to 9131 in 1839, to 10,434 in 1840, and to only 6368 in 1841. It was less fatal in 1841 than either measles, scarlatina, or hooping-cough. This happy result is probably to be ascribed in great part to the Vaccination Act, which came into operation in 1840; and may be expected, by extending the application of Jenner's great discovery, to effect a still further reduction in the sufferings, deformity, and mortality attendant on small-pox. *Hooping-cough* fell to the lowest ebb in 1840; *diarrhœa* and *cholera* were less fatal in 1841 than in 1840; *influenza*, though the mortality it occasioned was not great, grew more fatal every year, and in 1841 is stated to have been fatal to 1659 persons. *Ague* followed nearly a similar course; *Typhus* upon the whole declined; the mortality it occasioned in 1838 was 1271, while in 1841 it was 952 to 1,000,000 living. *Hydrophobia*, it will be observed, only proved fatal to 58 persons in four years; less than 1 in a million annually; but this kind of death is so distressing, that it is gratifying to find a decrease of 17 in the four years; 24 died of hydrophobia in 1838, only 15 died of the disease in 1839, 12 in 1840, and 7 in 1841. It is hazardous to speculate on the decline of a fluctuating disease of this class; but we shall probably not be very far wrong in ascribing the diminution of the number of cases to improved police regulations.

"The deaths of 48,053 persons were ascribed to diseases of uncertain or variable seat. The term 'inflammation,' without specification of the part inflamed,

* This is the arithmetical difference of the rates of mortality; and a similar mode of expression must be understood in the same sense in other parts of the paper.

is so vague that no use can be made of the facts. Many cases of 'hemorrhage,' returned 'rupture of a blood-vessel,' &c., belong to phthisis, to which head hæmoptysis, or spitting of blood, was referred. *Dropsy* is the most formidable disease of the class; the number still remains the same, although it has been the rule to refer all cases to the heart and kidneys, when affections of those organs have been specifically assigned as the organic cause. The deaths by *mortification*, a disease easily distinguished, have been very uniform throughout the four years, namely 1343, 1314, 1346, 1329; so have the deaths by cancer, 2448, 2691, 2786, and 2746. The 16,189 cases of death by debility, in 1841, comprise a great number of infants prematurely born, or weakly from birth, without the marks of any specific disease. Fatal malformations were 214 in 1839, 211 in 1840, and 206 in 1841. *Sudden deaths*, or cases in which inquests were held without determining the causes of death, increased but little from 1839 to 1841. If the deaths by hemorrhage, aneurism, and apoplexy added to the 'sudden deaths,' be supposed to represent with any degree of approximation the danger of sudden deaths, it will be found to have been very uniform through the four years, namely, ·000675, ·000669, ·000671, and ·000687. It is about 1500 to 1 that a person will not be cut off suddenly by any of these diseases: but the danger is increased by violent deaths, many of which take place rapidly. Childbirth, the zymoses, tetanus, and some acute inflammations, also put a speedy end to life. The sudden deaths of children are generally ascribed to 'convulsions.'

"*Cephalitis* and *hydrocephalus* have prevailed with remarkable regularity during four years: the annual mortality of the two was 667, 669, 688, and 671 deaths out of a million living. Apoplexy and paralysis together destroyed 710 yearly in the same population. To convulsions 24,563 deaths (·001575) were ascribed in 1841, but the number was smaller than in 1838, which may probably be considered less an indication of decrease than a proof that the primary diseases are now more frequently returned. More deaths were referred to delirium tremens than in previous years. The mortality by diseases of the nervous system, if we except convulsions, remained the same.

	1838	1839	1840	1841
Deaths out of 1,000,000, by diseases of the nervous system, ...	3,365	3,255	3,302	3,180
Deaths by convulsions, . . .	1,763	1,680	1,673	1,575
Deaths by other diseases of the class, .	1,602	1,575	1,626	1,605

"Diseases of the respiratory organs were fatal to 92,183 persons in 1841; the mortality which they occasioned was nearly 6 in 1000; it was 5911 in a million, or 132 less than in 1840, when 6043 in a million died of pulmonary affections. Of the decrease of 132 to a million, 55 was in pneumonia, and 75 in phthisis. The mortality by these two diseases remained, nevertheless, excessively high:—

	1838	1839	1840	1841
Pneumonia:—				
Total deaths, ...	17,999	18,151	18,582	17,997
Deaths to a million living, . . .	1,219	1,200	1,209	1,154
Phthisis:—				
Total deaths, ...	59,025	59,559	59,923	59,592
Deaths to a million living, . . .	3,996	3,939	3,897	3,822
Other diseases of the respiratory organs:—				
Total deaths, ...	13,799	12,855	14,402	14,594
Deaths to a million living, . . .	934	850	937	935

"Hitherto medicine has been able to effect little for the cure of confirmed phthisis, although there can be no doubt that attacks are warded off, and that life is prolonged by change of air, regimen, and the judicious administration of remedies. It is, on the other hand, a current doctrine in the schools, that pneumonia can be absolutely arrested by the free use of the lancet. How, then, it may be asked, does it happen that 17,997 persons died of pneumonia in 1841? A great number of the cases occurred in young children, and in old people, as incapable of bearing depletion as resisting a formidable disease; in many instances medical relief would be applied for too late; but after every allowance, 18,000 deaths annually must render the success of our present system of treatment less unequivocal than could be desired.

"The progressive increase in the number of cases registered as heart disease, from 3319 to 4246, may be ascribed to the diffusion of new methods of diagnosis, and to improvements in the character of the registration. It will be recollected that many dropsies, of which 13,095 persons died, are the consequence of retarded or obstructed circulation, the heart and its valves being the most common seat of the obstruction.

"The deaths by diseases of the digestive organs were 22,398. The mortality was 1436 in a million, or 29 less than in the previous year. The mortality by teething and convulsions together was 2 per 1000 in each of the three years 1838 to 1840, and 1·9 per 1000 in 1841. Of gastritis and enteritis (including all cases returned as inflammation of the bowels) 6980, peritonitis 300, tabes mesenterica 1070 cases were distinguished in 1841. The deaths by hernia remained remarkably constant in the last three years—474, 480, and 475; in 1838 they were 507. Colic, ileus, intussusception, and stricture of the bowel, taken together, proved fatal in the four years to 968, 881, 976, and 1067 persons. Six deaths were ascribed to the pancreas, 18 to the spleen. The aggregate mortality by jaundice, hepatitis, and other liver diseases, was remarkably constant in the four years—262, 264, 267, and 261 in a million. If ascites, which is frequently the consequence of cirrhosis, or 'hobnailed' liver, be added, the mortality will be slightly increased, or 266, 272, 280, 273. Of the 4068 deaths in 1841, it will be perceived that 864 were ascribed to jaundice, 498 to hepatitis, and 2706 to disease of the liver, without further specification.

"The same regularity which was evident in some other cases was maintained in the mortality from diseases of the urinary organs during the four years; it was 112, 101, 110, and 106 in the million. The deaths by diabetes, in which sugar is secreted, were 207, 214, 233, and 253, indicating a slight increase in the mortality from this peculiar disease. The deaths from stone and gravel were 261, nearly the same as from diabetes. In previous years, the deaths from stone and gravel were more numerous.

"Forty-four deaths were ascribed to ovarian dropsy in 1841, 43 in 1840. Only 107 deaths were referred to paramenia in 1841, this term including the peculiar maladies of females, and what is often called the 'turn of life,' which is attended with much mental disquietude and apprehension, but not much real danger. It may be supposed that the deaths by paramenia are much understated; but this is not certain, for it is an error to imagine that the age of 40–45 is an age of greater danger than 50–55, or upwards.

"1081 deaths were ascribed to rheumatism, 47 to arthritis, and 1161 to 'diseases' of the joints. Rheumatic fever will, we may hope, in time be clearly distinguished from the chronic affections with which it is at present confounded, under the term 'Rheumatism.'*

"About two persons in a million die of carbuncle every year; and, considering that the numbers are small, they fluctuated very little in four years—35, 38, 33, and 28. 12 in a million die of external ulcer, 7 of fistula, and 5 of other cutaneous diseases. These affections would be frequently complicated by, and would complicate, other diseases. It will be observed that several of the most common, painful, and troublesome complaints, which occur in surgical practice, add little directly to the mortality.

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* *See* Bright and Addison's Practice of Physic, under this term; also Dr. Todd on Gout and Rheumatism.

"About one-ninth of the people are returned as dying of old age.

"There has been an evident decrease in the violent deaths during the year 1841; still, the number of persons who died violent deaths remained high, amounting to 11,100. The violent deaths will be analysed in a separate article, to appear in an Appendix to the next Report.

"The causes of death not distinguished in the tables, and some singular or remarkable cases, will be found in the notes, p. 375."

As death by childbirth is always a subject of the most lively sympathy, we will here present the most important results determined upon this point.

"3007 mothers died in childbirth in the year 1841. On an average, 8 died from childbirth every day of the year. 11,722 English women died in childbirth (including miscarriages and abortions) in four years; namely, 2811 in 1838, 2915 in 1839, 2989 in 1840, and 3007 in 1841. The mortality was 1 death to 171 births registered.

"In the four years, the returns under this head were less specific than could be desired.

"The annexed return of some cases occurring in the metropolis will, however, give a general idea of the nature of the accidents that render childbirth dangerous.

"Of 196 cases noted, 55 were returned simply 'childbirth;' 7 'miscarriages,' two of the latter attended by hemorrhage; 27 'flooding,' or loss of blood; 6 rupture of the uterus; 63 puerperal fever, peritonitis, or inflammation of the womb; 1 erysipelas; 1 inflammation of brain, 1 of heart, 4 of lungs; 3 phlegmasia dolens; 1 serous effusion after childbirth; 14 exhaustion, collapse, syncope, debility; 2 convulsions; 5 puerperal mania; 1 difficult labor; 1 exhaustion from a fibrous tumor in the uterus; 1 tubercles in the womb after childbirth; 1 ovarian dropsy after premature parturition; 1 dropsy and childbirth.

"Original malformation renders labor in some cases difficult and dangerous; at other times pregnancy occurs in women afflicted with fatal maladies (fibrous tumor, tubercles, ovarian dropsy); and, as childbearing does not exempt the frame from disease, all the deaths which occur in that state, spontaneously or from accident, must not be ascribed to it in any other way than as a complication. Small-pox is almost invariably fatal in the puerperal state;* and if inflammations of the brain, heart, and lungs occur, their danger must be increased; but it is probable that the above cases were some of the many complications of 'puerperal fever.'

"The terms—puerperal fever, puerperal peritonitis, uterine phlebitis, inflammation of the uterus—are applied by writers, without any great discrimination, to modifications of one affection, which it was proposed, in the nosology, to designate 'metria,' the uterus and its appendages being the source and principal seat of the malady; which has, however, no more in common with pure inflammations, like peritonitis, than have the changes of the glands of Peyer in typhus. Metria is contagious; but this fatal disease, with phlegmasia dolens and puerperal mania, will probably be regulated, to a certain extent, by the same causes as diseases of the first class. Another large section of the mortality is from the loss of blood, rupture of the uterus, or mechanical causes, and must very much depend upon the skill and care of the persons in attendance."

Before referring to the deaths caused every year by the contagion of puerperal fever, communicated by the medical attendants and the nurses, we will here introduce the interesting subject of having in England educated nurses and midwives, the latter being of the character of the French *sage-femme*. This is a suggestion of the industrious and accomplished

* Dr. Gregory.

William Farr, Esq., who, it may be said, bears upon his shoulders, like another Atlas, the immense burden of making perhaps all the calculations and deductions belonging to these Reports—an algebraic labor that we should have supposed would have frightened any man, save a German mathematician.

"Midwifery," he says, "is as well understood in England, and the medical practice is certainly as sound, as little encumbered with obsolete prejudices, as well adapted to aid and correct the efforts of nature, as the other parts of surgery; but errors in practice are sometimes committed; and though excellent nurses, considering their education, are sometimes met with, medical precepts are too often set at naught by the nurses and old women in attendance, who have peculiar views of their own, which they lose no opportunity of announcing and carrying into effect, with the best intentions in the world, but the worst consequences. A large proportion of the 500,000 English women who lie-in every year, and have any attendance at all, are attended by midwives, who, from one cause or other, probably delicacy of the national manners in points of this kind, receive no regular preliminary instruction in anatomy and other matters, some knowledge of which a glance at the causes of death in childbirth will show is indispensable in many emergencies. It is true that a medical man can be called in where the danger is imminent; but, to discover danger, a knowledge of its sources is required; and those who have come in contact with midwives, or 'monthly nurses,' are well aware that ignorance does not diminish their self-confidence. In France, the 'sages-femmes' go through a regular course of instruction, theoretical and practical. Madame Boivin and others have greatly distinguished themselves there by their writings, and contributed not a little to the progress of their art. Mr. Hoffman states that the Prussian government supported, in each of the eight provinces, schools of midwifery, which in 1837 had furnished the country with 11,155 midwives, examined and passed by the Medical Boards.*

"It would be folly—with the undoubted differences in our manners and institutions—to argue that the French or Prussian system should be introduced into this country; practically they are perhaps not more efficient than our own; but it is very well worth while, in the first place, to inquire whether our English system does not admit of essential improvements, and in the second, what steps should be taken for carrying these improvements into effect.

"No one who has reflected upon the subject, and certainly no one who has a practical acquaintance with it, will contend that the annual deaths of 3000 women in childbirth, and of 13,350 boys, and 9740 girls in the first month after delivery, or the sufferings and deformity of many who escape with life, are natural and inevitable. Admit that the lives of a thousand—of five hundred—or of one hundred of these mothers might be saved—and that many more might be rescued from injuries and pains which disable, or never leave them, and assuredly no apathy, no false sentiments of delicacy, will prevent those who have the public health at heart from giving the subject the most attentive consideration.

"If schools for the education of nurses and midwives were established in the metropolis, and the large towns, under medical supervision, and some distinction were conferred upon those who proved attentive, kind, and skilful, such schools would probably be frequented. A highly useful profession would be thrown open to women, who have now so few fields of profitable employment; and the utility to the community of a recognized body of respectable women, educated as nurses, acquainted with the plain doctrines laid down in the popular medical works on health, and possessing as much knowledge of midwifery as the French *sage-femme*, would be incalculable. Some of these schools might be connected with the present hospitals and lying-in institutions; others might be founded for the delivery of easy popular lectures, and for providing the wives of the indigent

* Die Bevölkerung des Preussischen Staats in 1839.

with gratuitous attendance, or attendance slightly remunerated—to be supplied by the young nurses, superintended by those practically versed in their art, and medical officers.

"In a year, or two years, intelligent women would acquire, at such an institution, sufficient information and skill to be useful nurses. It is questionable whether they should be taught the properties of drugs. I do not think that they should be allowed to dabble in such dangerous articles. If they were taught in what circumstances to give a few drops of laudanum after delivery, and when to administer castor-oil or tincture of rhubarb themselves, or in what way to apply the remedies prescribed by physicians or surgeons, it would be enough. To attempt more would be to establish a new class of half-educated practitioners, like the druggists, and would infallibly lead to mischief, without any chance or prospect of countervailing good.

"After consulting on the subject several medical men in extensive practice, I may state that the want of good, educated, trustworthy nurses is felt in the highest circles, as well as in the middle ranks of society. The nurse is always present with the patient, the medical man only occasionally; to the nurse is entrusted the administration of remedies, the ventilation of the apartment, the warming, the diet, and a thousand nameless offices on which health and life depend. How can a nurse without guiding principles—without sound convictions engrafted on her mind by education—swayed by her feelings and traditional prejudices, be expected to discharge her difficult duty? The nurses of hospitals acquire a practical knowledge of their art, and get employment out of doors; but, as a general rule, hospital nurses are under-paid, and the consequence is, that they are often a very inferior class of women, who can get no other engagement. There are exceptions, but as our religion has not yet called into existence a class like the *sœurs de charité*, it is vain to expect nurses to supply their places, unless the wages (they should be salaries) be sufficient to supply educated persons with a comfortable subsistence.*

"An institution for the education of nurses would probably succeed better than many of the medical schools; but they would be nurses for the middle and higher classes; the small outlay of capital which an education of the kind would involve, must tend very much to preclude the admission of midwives for the artisan's wife. To provide these, the professional education should be at first gratuitous; or a few professorships should be endowed, and the fees be made low for all the instruction in the doctrines of health, and in the principles and practice of midwifery, including nursing in sickness of every kind. The appointment of parish nurses and midwives under the medical officer could alone provide for paupers; but the laborer or artisan would find the attendance of the nurses, who had availed themselves of the moderate education adverted to above, of great use in the sickness of his family, and really less costly than the spirit-drinking nurses now met with, who sometimes, it is to be feared, demoralize his wife, and poison his children.

"Several collateral advantages would arise from the institution and support of a class of educated nurses distributed all over the kingdom.

"New habits and practices are much slower in their progress than opinions and knowledge; they require to be taught 'in season and out of season'—by precept and example. Our present knowledge of the laws of health—of the causes of death, and consequently of the means of preserving health—is imperfect, no doubt, but it is very far in advance of what was possessed in the last century. The popular works of Dr. Southwood Smith, Dr. Andrew Combe, Mr. Pye Chavasse, Dr. Hodgkin, and others, place within the reach of the public important doctrines which were unknown to Sydenham. Such popular medical literature has an extensive sale; but it would be a mistake to suppose that the mass of the population, rich or poor, is acquainted with the best established sanatory principles, and the reasons on which those principles rest—is

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* There is a small society of "nursing sisters" (not midwives), of whom report speaks favorably.

therefore much influenced by them, or is willing to take the trouble and incur the expense requisite for procuring what science and calculation prove are necessaries of life. The practice of no small part of the population in sanatory matters, so far as it can be referred to rules, and is regulated by doctrines, is the practice inculcated by former generations of medical men; and is only broken in upon by a few rays of new light. The well-informed part of the community owe their enlightenment principally to the teaching of their medical attendants, who lose no apt opportunity of laying down rules of health, and enforcing them, by drawing the attention of families to the sad and often striking consequences of neglect. This is the more praiseworthy in the members of the medical profession, considered as individuals, inasmuch as the colleges do not prescribe, nor the schools provide, as in other countries, any systematic courses of instruction in hygiology (the *hygiène* of the French). The art of preserving health is not yet taught in the medical schools of England; and it is only just to add that it is not paid for in any shape by the public.

"It is, nevertheless, to the medical profession chiefly, that we look for the extension of the sound doctrines of hygiology, and to their due influence in the homes and daily life of families. But would not the medical man be as much assisted by instructed, as his proposals are now thwarted by ignorant, nurses! Would not the constant reasoning, the stories, the advice, of an amiable woman —comparatively well-instructed in her *profession*—go further than anything else to impart practical principles to the mothers of families! And who does not know that the comfort and cleanliness of the poor man's hearth, the lightsomeness and health of his room, the vigor and training of his children, are the work almost entirely of the wife! If the educated nurses possessed the sound common sense and good nature which a body of English women scarcely ever wants, and could be induced to read, so as to keep up their knowledge, and to apply practically the improvements which every day brings to light, they would be a connecting link between the highest class of intelligences engaged in medical research, and the humblest members of the community to whose advantage those researches invariably tend. The English midwife would then be 'worthy of her reward.'"*

Childbirth fatal by Contagion is next considered; and here a deserved reference is made to the excellent paper of our countryman, Dr. Oliver W. Holmes, of Boston, on the *contagiousness of puerperal fever*. As this is a subject of the highest interest, we will endeavor to make our *résumé* as complete as possible, even at the risk of being thought prolix. Besides, it will be again adverted to in our notice of Nunnelry's treatise on Erysipelas.

"The cases which cause most distress to medical practitioners, and most alloy the pleasure which they must feel, upon the whole, in the ministration of medical relief to mankind, are undoubtedly those deplorable and rare instances in which they communicate contagious diseases to their patients. I intend to make a few observations upon this point, in connection with the prevention of 'puerperal fever,' which is the most common cause of death in childbed. Of its communication by contagion many instances are on record, and some cases of very painful interest have been related to me by surgeons who have been so unfortunate as to have met with it in practice. But the most useful facts on the subject, in connection with private practice, have been condensed in the annexed paper, which is in the highest degree creditable not only to the candor of Mr. Storrs, of Doncaster, by whom it was drawn up, but to the medical profession generally, who are in a certain sense interested in suppressing such facts, and in disputing the evidence of contagion. The experience of lying-in hospitals

* Verstegan on the derivation of *midwife*, has "*medewyf*, a woman of mede, merit, deserving recompense." See the word in Richardson's Dictionary. The Anglo-Saxon midwife is coeval with the "leech."

confirms Mr. Storrs' conclusions; but the extent to which these institutions increase the danger of childbirth is now well known.

"I wish to call particular attention to the following judicious suggestions of Mr. Storrs, which should never be lost sight of by medical practitioners, midwives, or nurses:—

"'I think it desirable for midwifery practitioners to avoid attending labors in the same dress in which they attend their ordinary patients, especially the coat, as this garment must be the one most likely to be the means of conveying fomites; and at any suspicious period, when typhus or erysipelas is prevailing, to carry out the same carefulness even in the after attendance on labor cases.

"'I should also, after a post-mortem of any kind, or after an operation upon any case of erysipelas, or of typhus, recommend the most careful ablutions of the hands, and for the surgeon to avoid attendance on a labor in any part of the dress in which such operations have been performed, not forgetting the gloves, as the hand and arm are the chief instruments of contact. Where, however, the disease has been unfortunately once set up in a practice, *an absence from home for a fortnight or three weeks, a total change of raiment, the most careful ablutions, and a perfect avoidance of every case likely to have been the source of animal poison, should alike be adopted by the practitioner.*'"*

"* Observations on Puerperal Fever; containing a series of evidence respecting its Origin, Causes, and Mode of Propagation. By Robert Storrs, Esq., Surgeon, Doncaster.

"The subject of the contagiousness of puerperal fever has been taken up by our medical brethren in America, in a paper by Dr. O. W. Holmes, published in the 'New England Quarterly Journal of Medicine and Surgery,' for April, 1843, and copied into the July number of the 'American Journal of Medical Sciences,' wherein he brings forward a strong array of evidence, which goes far in support of the opinions and in corroboration of the views I advanced in the Provincial Journal for April, 1842, when I gave a history of puerperal fever as it occurred in my practice in the early part of the previous year. I am induced, therefore, to send you a few more remarks on that subject, merely offering, as an apology, that it has absorbed a considerable share of my thoughts and attention since the occurrence of the unhappy cases in question, and that it will continue to excite a lively and painful interest in my mind as long as it retains its powers.

"Dr. Holmes's paper proves, I think indisputably, the contagiousness of the disease; that it occurs generally only in the practice of one individual in a place; and that it is intimately connected with erysipelas: but it does not, I think, go far enough, in merely considering it to be propagated by medical men and nurses from one puerperal patient to another; whereas the disease, in my belief, is quite as frequently carried by the medical attendant to each fresh labor patient he is called upon to attend, from some original infectious case, whether of gangrenous erysipelas, of typhus fever, or of whatever animal poison besides, may hereafter be found to produce it. That I took it from a case of gangrenous erysipelas with subsequent abscess, to every case which occurred to me, I have no doubt; the precautions I made use of being in reference to the contagion of the fever itself, rather than to the particular case, which I found too late to be the sole cause of it.

"I shall now, from circumstances occurring to friends and neighbors, from cases already published which have come to my knowledge, and from my own personal experience, endeavor to prove, as concisely as the importance of the subject will admit of it, the four following propositions, viz.:—

"1. The contagiousness of puerperal fever.

"2. The origin of puerperal fever from an animal poison, chiefly erysipelas and its consequences, but sometimes typhus fever.

"3. The power of puerperal fever to produce indiscriminately, in the persons of the attendants and nurses, and in the families of the affected parties, erysipelas, typhus, and a fever sometimes in the male, strongly resembling the puerperal.

"4. That in general the most prompt, judicious, or careful treatment, is of no avail.

"I shall begin this attempt first by an array of evidence yet unpublished, chiefly in the order in which I have received it from those friends who have favored me with the

The rest of this highly important paper, it will be necessary, in consequence of its length, to condense as much as will be practicable, keeping in view its perfect comprehension.

Mr. Sleight, of Hull, gives three cases of puerperal peritonitis. The

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result of their unfortunate experience, and shall support it by what has been, in some form or other, already before the public.

"To obtain all the information in my power from authentic sources, I addressed the following questions to Mr. Reedal, of Sheffield; Messrs. Hardey and Sleight, of Hull; and to Mr. James Allen, of York; all men of local eminence, who have themselves seen the disease in their own practice.

"1. What is your opinion of the contagiousness of puerperal fever?

"2. Do you consider it to arise from erysipelas, or from any other animal poison?

"3. Do you consider it to have been propagated from one puerperal woman to another, or from a non-puerperal case which first produced it?

"4. Had you any post-mortem examination? If so, what appearances were observed—especially was there pus in the uterine veins?

"5. What treatment did you pursue, and what did you find of most avail?

"6. Were any of the friends or attendants of the parties immediately afterwards seized with disease, and of what kind?

"7. What other practitioners in your town had cases of a similar nature at the time?

"8. Will you state the date of the commencement of the first and last cases of the disease, and how many cases of it occurred to you in that period?

"As I consider myself indebted to Mr. Reedal, of Sheffield, for the most decided information as to the origin of the disease from erysipelas, I will begin with his communication; and as his letter is so full of facts, and so concise, I shall make no apology for transcribing the whole of it. It is as follows:—

"'*Sheffield, Nov.* 15, 1843.

"'Dear Sir,—In reply to your note of the 19th of October, respecting those cases of puerperal fever which occurred in my practice, I beg leave to subjoin the following answers to your queries:—I may premise that at the time of my attendance on those females who were subsequently attacked, I had under my care a young man laboring under sloughing bubo, combined with erysipelatous inflammation of the scrotum and nates, of a malignant character, which required dressing daily, and which ultimately proved fatal. It may be somewhat corroborative of the supposed dependence of this form of puerperal fever on an animal poison generated by this sore, and propagated by contact, that the sister of the young man, who waited upon him, was seized with erysipelas of the head and face, of a very low, typhoid nature, which terminated fatally in a few days.

"'1. In answer to your first question, it is my decided opinion that the cases occurring in my practice were from contagion.

"'It would be unnecessary in me to repeat my implicit belief in the contagiousness of this disease, and its connection with this case of erysipelas; but if further confirmation were needed, I might adduce the circumstance, that immediately antecedent to my taking the charge of the above case of erysipelas, I had met with no cases of puerperal fever, and that upon discontinuing my attendance upon the young man (which I immediately did upon the belief that I was the medium of conveying infection from him to the puerperal cases), I had no recurrence of puerperal fever.

"'3. In reply to this question I may give it as my opinion, that in all my cases the disease had one common origin, viz., the bubo, and was not communicated from case to case.

"'4. I had a post-mortem examination of one of the cases, but am sorry that in consequence of not having the notes by me, I cannot answer this question so satisfactorily as I could have wished. The abdomen was tympanitic; the uterus flaccid, with considerable softening; its lining membrane injected. There was a large quantity of serum in the peritoneum, with flocculent matter floating in it. We made an examination to ascertain whether there was any pus in the veins, but we were unable to discover any.

"'5. I have no ground for faith in any particular treatment, as all seemed alike unavailing. In the treatment of the above cases, assisted by Drs. Thompson and Favell, various forms were employed. In the two first cases we employed bleeding, both general and local, which we thought prejudicial, by depressing the powers of the patient. Mercurials were employed without any good effect. Turpentine was

first patient was attacked on the day after delivery, and died on the following day. Her nurse had been attending a lady who had died of the same disease. The other two cases occurred within a week or ten days of each other. "I was called," he says, "to the first case whilst visiting a patient suffering from erysipelas; I immediately left him, and went to attend my female patient, who had a quick natural labor; she was attacked with puerperal peritonitis within twenty-four hours of her delivery, and died eighteen hours after the commencement of the attack. In the second case, the patient was attacked the day following her delivery, and died within twenty-four hours."

Mr. Hardey, of Hull, in the course of one month, 1838, had twenty cases of puerperal peritonitis, of which seven proved fatal. He is impressed with the conviction that the disease was some way connected with his attendance on a case of a large sloughing abscess of the groin, and also one, at the same time, of erysipelatous abscess of the mamma. As large numbers of sheep, hogs, and cattle died, at the same period, of parturient disease in that and the neighboring counties, there was evidently a peculiar atmospheric constitution.

The following history of certain cases, showing most clearly and positively the origin of the disease from gangrene, is stated.

"Three surgeons, residing in the same town, attended the post-mortem examination of a patient who had died from gangrene after an operation for strangulated hernia, and were all of them employed in handling the diseased parts. One of them was called from the inspection to a case of labor, which terminated in fatal puerperal fever; he had others in rapid succesion. The other two surgeons had also fatal cases of puerperal fever within a day or two after the same inspection.

"On casually meeting, they mentioned their misfortunes to each other, and

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given by the mouth and rectum, and applied externally to some of the latter cases; this at the time I thought to be most beneficial.

"'6. I have known of none of the attendants on these puerperal patients being attacked by any disorder which might be supposed to have arisen from these cases.

"'7. No other medical practitioner had any case of a similar nature at that time.

"'8. The first case commenced on the 27th of October, 1838, and the last on the 3d of November, and during that period five females were seized, and all died. During this week I attended two other females; one went on well without any unfavorable symptom; this patient I was called to about four hours after attending a lady who was the first fatal case; the other was attacked with inflammation of the mucous membrane of the bowels, but recovered in a few days. In the latter case, twelve or fourteen hours had intervened between my visit to the young man and my attendance upon this female; but in all those which proved fatal I went nearly direct from dressing the sore.

"'I should also wish to state that at the time those cases occurred to me, Mr. Parker, then my pupil, but now resident in Sheffield, attended many midwifery cases, and all recovered well. He never visited the erysipelatous patient.

"'The above cases were not confined to one locality, but were living in different parts of the town, showing that the disease did not arise from any local cause. As I have previously stated, I had very strong suspicion, after the first case or two, that I was conveying the infection, but could not discover how, until the sister was seized. This was the most malignant case of erysipelas I ever witnessed. I then began to think whether I was not conveying the poison from this source. I am sorry that the above cases were not reported at the time they occurred. The reason why they were not, arose from what I said concerning the notes in my former letter. You are quite at liberty to make whatever use of the above remarks you think proper.

"'I am, dear Sir, yours truly,

"'*To Robert Storrs, Esq.*'" "'G. Reedal.

were thus convinced of the origin of the disease. They all abandoned practice for a short period, and had no more of it."

Numerous other cases are mentioned, all going to establish the conclusion, that puerperal fever may be communicated by medical practitioners when in attendance on such diseases as gangrene, typhoid erysipelas, malignant typhus, and after making a post-mortem examination of any of these affections; but, at the same time, it would seem, fortunately, to be just as clearly proved that, as this disease in this malignant form arises from an animal poison, and that that animal poison is the product of few other diseases, the direful malady may be prevented from spreading, by simply abstaining, when attending such patients, from attending, without proper precautions, all obstetrical cases.

In conclusion, the writer remarks:

"I think, after a dispassionate examination of the cases and histories recorded above, it will be allowed that the propositions I have stated at the commencement of this paper have been fully made out. The contagiousness of the disease is chiefly proven by its adhering to one practitioner in a place alone. He will, for instance, have several cases of it in succession; and until he is fully made aware of being himself the vehicle of the poison which produces it, he cannot rid himself from it. When, however, he is fully convinced of its contagiousness, he ceases his attendance on obstetric practice for a time, uses complete and frequent ablutions, perhaps goes from home, has a complete change of clothes, and on his return, or on the resumption of his practice, has no more of it. Sometimes, though at an early period, fully aware of the contagion he is spreading, he repeatedly changes his clothes, and uses every precaution that extreme anxiety can suggest; still the disease clings to him, even after a journey, and abstaining from practice, until he becomes aware that the subtle poison arises from a non-puerperal case which, on declining to attend, he at once finds to have been the cause of all the mischief. Such was my case; and though I personally attended in all about twenty cases, which did well during the lengthened period of the continuance of the disease with me, I am convinced that they only escaped destruction in consequence of my anxious efforts to rid myself of the disease by the precautionary measures above mentioned, but which in some instances were unfortunately insufficient, because I was still attending the case from which the poison sprung. Whatever information, therefore, throws a light upon the origin of the disease must be valuable in teaching us how to prevent it, whether that origin be erysipelas, gangrene, or typhus.

"How much inferior in importance must a knowledge of the treatment or post-mortem appearances of such a disease be, when its rapidity and severity allow of neither time nor means with which to combat it, and where the exceptions to the rule are the cured, not the deaths, and where recovery, where it does take place, appears to result from some fortunate circumstance, which has mitigated the intensity of the poison, or from some unusual degree of insusceptibility on the part of the patient rather than from the skill and promptitude of the practitioner. In those instances in its history where the disease has been so frequently brought to a favorable termination, as in Dr. Armstrong's cases, I should attribute the success to the less degree of intensity of the poison which had set it up, or (if the irruption was of long continuance) to its being partially worn out, rather than entirely to the skill of the medical attendant; because, though the form of treatment adopted by that eminent man, by Mackintosh, and others, has been repeatedly followed up, it has very seldom been found available in the more destructive forms which have been recorded in this paper. The most eminent men of the present day who have witnessed it—as Drs. Locock, Ferguson, R. Lee, &c.—are not less hopeless of success than was Dr. William Hunter almost a century ago.

"I have said little, therefore, on the subject of pus in the veins (at this time a favorite theory), as it appears to be sometimes present, though more frequent-

ly not so, my efforts in doing good being, I think with reason, directed to prevention alone.

"As it is well to be always guarded against such a misfortune, I think it desirable for midwifery practitioners to avoid attending labors in the same dress in which they attend their ordinary patients, especially the coat, as this garment must be the one most likely to be the means of conveying fomites; and at any suspicious period, when typhus or erysipelas are prevailing, to carry out the same carefulness even in the after attendance on labor cases.

"I should also, after a post-mortem of any kind, or after an operation upon any case of erysipelas, or of typhus, recommend the most careful ablutions of the hands, and for the surgeon to avoid attendance on a labor in any part of the dress in which such operations have been performed, not forgetting the gloves, as the hand and arm are the chief instruments of contact. Where, however, the disease has been unfortunately once set up in a practice, *an absence from home for a fortnight or three weeks, a total change of raiment, the most careful ablutions, and a perfect avoidance of every case likely to have been the source of animal poison, should alike be adopted by the practitioner.*"

Causes of the high Mortality in Town Districts.—The diseases of the towns and the open country present remarkable differences, as appears by the following very interesting general deductions:

"The investigation of the fatality of diseases in towns (in the Appendix to the First Report) necessarily left some uncertainty in the results, as it was founded upon the returns of half a year, and the population could only be estimated on an assumed rate of increase. In the four years that have since elapsed the census has been taken, and a mass of facts has been accumulated which furnish the means of determining the influence of the density of population on the causes of death. It will be convenient, for the sake of comparison with the Appendix to the First Report, to take the same districts, and to pursue the same order.

"The population, in 1841, of the districts in the counties of Essex, Norfolk (except Norwich), Suffolk, Sussex, Gloucestershire (except Bristol and Clifton), Herefordshire, and Westmoreland, an area of about 9352 square miles, was 1,700,484. The deaths registered in the four years (1838-41) were 132,116.

"The population of Birmingham, Aston, Bristol, Clifton, Bath, Manchester, Salford, Liverpool, West Derby, Cambridge, Carlisle, Derby, Dudley, Exeter, Leeds, Leicester, Maidstone, Newcastle-on-Tyne, Sunderland, Northampton, Nottingham, Sheffield, Stoke-on-Trent, Wolstanton, and Wolverhampton, standing on 666 square miles, was 1,883,693; and the deaths registered in four years were 205,966.

"The population of the town was greater than that of the country districts by 183,209; as a correction for this excess strike off 20,000 from the deaths in the former districts, and the following is the result:—

	Country Districts.	Town Districts.
Deaths in the same time out of the same population,	132,116	185,966

"The excess of deaths in the different circumstances was 53,850.

"For another instance, the metropolis inhabited, in 1841, by 1,875,493 persons, may be compared with the south-western division, comprising, in Wiltshire, Dorsetshire, Devonshire, Cornwall, Somersetshire, a population of 1,740,017. The deaths were 189,927 in the metropolis, 130,298 in the south-western division; and after the same kind of correction as before, the result is of the same character.

	South-Western Districts.	Metropolitan Districts.
Deaths in the same time (4 years) out of the same population, ...	130,298	176,210

"The excess of deaths in the metropolis was 45,912. Taking the same population, a greater number died in three years in the metropolitan districts than died in four years in the south-western districts. If the mortality were reduced to the same rate, there would be from 10,000 to 12,000 less funerals in the metropolis every year.

"By combining the two series of observations the following aggregate numbers are obtained :—

	Country Districts.	Town Districts.
Deaths in the same time (4 years) out of the same population, ...	262,414	362,176
Difference, . .	99,762	

"The deaths occurred in the four years, 1838-41, and the population increased 2 per cent. (·01967) annually in the town, ·8 per cent. (00847) in the country districts, during the 10 years, 1831-41. Upon dividing the annual deaths by the population (calculated) for January 1, 1840, the annual mortality was found to be as follows :—

Living.	Annual Deaths.	
	Country Districts.	Town Districts.
1,000,000	19,300	27,073
Population to a square mile	199	5,108

"One in 52 died in the country, one in 37 in the town districts. The mortality in the dense districts was to that in the less dense districts as 140 to 100.

"The Table (pp. 403-5) has been constructed to show the causes of death in the country and town districts ; the causes of death returned in four years for the 25 town districts, the metropolis, the south-western counties, the eastern and other agricultural counties, are stated in separate columns (1, 2, 3, 4) ; the aggregate returns are included in columns 5, 6 ; and the annual mortalities by each cause to a million living, are contrasted in the columns 7, 8. It will be recollected that the population of the metropolis was nearly equal to the population of the 25 town districts ; while the population of the south-western division was 1-42d part more than the population of the other counties.

"The deaths by diseases of the zymotic class were 86,835 in towns, 45,114 in the counties ; and the annual mortality was 6013 and 3422 in a *million* living. By *small-pox* the mortality was twice as great in the town as in the country districts (1045 and 507) ; 8348 persons died by this disease in the '25 towns' (so they may be called for shortness), and 6739 in the metropolis, 3844 in the south-western division, 2834 in the other counties. The mortality (in a *million*) by *measles* was 914 in the town districts, 364 in the country ; by scarlatina (including putrid sore throat) 988 and 478 ; by hooping-cough 829 and 415. Thus

8465 (children chiefly) died of *measles* in the '25 towns,' 2774 in the south-western division, 4729 in the metropolis, and 2021 in the 'eastern, &c., counties;' 7627 died of scarlatina in the '25 towns,' and 2499 in the south-western division, 6640 in the metropolis, and 3801 in the eastern and other counties. *Hooping-cough* was fatal to 11,975 in the metropolis and the '25 towns,' to 5468 in the south-western division and the other counties. *Croup* was much more fatal in the '25 towns' than in the metropolis, while it was the reverse with 'thrush;' and neither of these maladies was much more fatal in the town than in the country districts. The mortality of diarrhœa, dysentery, and cholera together, was 385 in the towns, 196 in the country. Typhus (comprising the cases returned as *fever*) was fatal to 18,111 in the town, 13,159 in the country districts; the mortality (to a *million* living is understood throughout) was 1254 and 998. The mortality from erysipelas was 133 and 53; from syphilis (as returned) 18 and 10 in a million. *Twenty-eight* died of *hydrophobia* in the towns, 10 in the country districts.

"The diseases of 'uncertain or variable seat' were nearly equally fatal in the two classes of districts. More deaths were referred to scrofula and cancer in the country than in the town districts; 13,194 persons died of dropsies in the town, 12,040 in the country districts.

"The mortality by cephalitis and hydrocephalus together was 1143 in the town, 445 (to a *million*) in the country districts. Hydrocephalus destroyed 4409 children in the country, 12,656 in the town districts. The mortality by convulsions was 852 in the country, 2000 (to a *million*) in towns, where tetanus and chorea were also most fatal. The mortality by apoplexy and paralysis, as well as the 'sudden deaths,' in which inquests were held, was not much greater in towns than in the country. By consumption the mortality was 4463 (in a *million*) in the town, 3660 in the country districts; or 64,449 persons died by this disease in the town, 48,252 in the country districts. The mortality by consumption was raised only 22 per cent. in the town districts; but in this destructive disease the increase produced 16,197 deaths, while the *total* deaths from typhus in towns was but 18,111, and the excess over the deaths from that disease in the country 4952. Sufficient attention has perhaps not been paid to the great excess in the mortality of consumption, caused by the insalubrity of towns. The deaths by bronchitis, pneumonia, asthma, and other diseases of the chest, were raised from 21,966 in the country to 50,609 in the town districts; the mortality was 1667 and 3504 in a million.

"The annual mortality by diseases of the *digestive organs* was 1972 (to a *million*) in the town, 1042 in the country districts; but of this mortality 616 and 120 were referred to *teething*, a disproportion which, vague as the term is, serves to indicate the greater irritation and danger of dentition in towns. Enteritis and peritonitis were nearly twice as fatal in the town as in the country districts. *Tabes mesenterica* was, like consumption, increased only about one-fifth in the town districts. By liver disease and hepatitis the mortality was 171 in the country, 233 in the town districts; by jaundice 55 and 57. The mortality by diseases of the urinary organs was 101 in the country, 117 in the town districts. The mortality by diabetes was the same (13); by stone and gravel 12 in the country, 16 in the towns. The excess was perhaps caused by the resort of patients to the hospitals in towns.

"Of childbirth, 3195 women died in the town, 1806 in the country districts; the excess in towns was more than 1000 lives; the mortality was 221 and 137.

"The mortality by rheumatism was greater in the towns than in the country (72 and 48); so was the mortality by diseases of the joints.

"The mortality ascribed to intemperance was 19 in the town, 7 in the country districts; to starvation, 15 in the town, 8 in the country districts.

"I have pointed out only some of the more important results in the table, which should be carefully studied in all its details.

"The essential character by which we have been guided, in classifying districts under the head of 'town' or 'country,' is the density of the population, which can be expressed numerically by the 'population to a given area,' or the

'area to each person.' Whether the population possesses any privileges, is incorporated, or is under any peculiar jurisdiction; whether the place is technically a 'city,' or a 'town,' or neither, has not been considered; if it has a considerable population, living in close proximity, it is here considered a 'town' district. The registration districts are generally single parishes, or parishes united for the relief of the poor, and were formed by the Poor Law Commissioners with this object exclusively in view; hence the 25 town districts include, with towns, entire parishes, which have all the character of country districts, and the municipal boundaries themselves frequently take in open suburbs and spaces. The width of the streets, and the relative area covered with dwellings, also differ in the same city.

"Upon the other hand, the 'country' districts in the table comprise all the towns in Wiltshire, Devonshire, Dorsetshire, Cornwall, Somersetshire, Norfolk (except Norwich), Essex, Suffolk, Sussex, Gloucestershire (except Bristol and Clifton), Herefordshire and Westmoreland. The terms 'town' and 'country' districts must consequently be understood in this inquiry to designate prevailing, and not exclusive, characters. The comparison is instituted between denser and less dense, not between the densest and most scattered populations in the kingdom. Assuming that the mortality is increased as the population grows denser, the mortality of the class of 'town districts' is less, that of 'country districts' greater, than it would be if the population were exclusively of the kind by which the class is characterized. The effect of the agents is understated by which the disease and mortality of towns are caused. It is as if the specific gravities of two masses of metal were compared, the one containing eight, the other two parts in ten of gold; the ratio of the specific gravities of the two masses would be less than the ratio of the specific gravities of the pure metals; but a comparison would prove that gold was by far the heaviest.

"Without any difficult analysis this broad irrecusable result is then obtained from an immense number of facts, that certain diseases are much more fatal, and that the mortality is much greater, in towns than in the open country."

The next point of inquiry will be the *causes of the diseases which, according to the registration, are so much more fatal in the towns than in the open country.* "To distinguish these causes," says Mr. Farr, "and to determine precisely the share which they have, single or combined, in the production of disease, an elaborate series of observations and experiments must be instituted, in which the resources of chemistry, natural philosophy, medicine, and the mathematical sciences, will be called into requisition." It will be seen, however, that the diseases of towns can be clearly traced to groups of causes, and that they may be partially analyzed. As we feel a very high degree of interest in this subject, and as we judge our readers by the standard of our own taste and judgment, we are just now disposed to spin a pretty long yarn, in the way of extracts. As the following extended quotation consists of reasonings and deductions that are, in a great measure, new to the great majority of our readers, and as it does not admit of condensation to any material extent, we have concluded to present a full exposition of the subject:

"Experience has shown that there are certain things which may be called necessaries of life; they are the produce of labor, and possess a variable value; a portion therefore of every population, savage or civilized, cannot procure them, and is subject to privation in different degrees. These necessaries are—(1.) Water, (beer, wine, tea, coffee); (2.) Food, (meat, bread, fruit, vegetables); (3.) Physic; (4.) Clothing; (5.) Firing, (light); (6.) Lodging; (7.) Cleansing, (washing, sewerage.) The relative value of these articles is represented by their price, which varies at different times and places, but the price does not express the relative facility of procuring them, that is, of procuring, in the wide sense of the word, subsistence. This facility is expressed by the ratio of the earnings

of a family to the cost of its subsistence; for if the seven necessaries of life cost 100*l.* in one place and 120*l.* in another, and the earnings are also 100*l.* and 120*l.* respectively, each family will have a competency. But misery, want, competency, comforts, and the *aisance* of the French, significant as they are, cannot be expressed numerically; they may be understood differently; in a sanatory inquiry, we may therefore substitute for them the value of this ratio, which can be determined and expressed in terms to which all would attach the same signification. Let it be assumed, for a moment, that a sufficient supply of the necessaries of life can be procured by a family for 100*l.* a-year, what will be the effect of reducing the earnings of the family to 50*l.* a-year? We know, by observation, that it does not reduce the duration of life in that ratio; and the reason is, that by the substitution of a coarser and cheaper food, hunger can be appeased, and the body supplied with sufficient nutritive matter, or matter that may serve as a substitute for those more grateful combinations, which the appetites and experience seem to point out as the best food for mankind. The animal food, in the case supposed, would be replaced by bread or potatoes; the beer, tea, and coffee would be weaker; in illness, medical advice would be less frequently obtained; the clothing would be coarser and scantier; the fire smaller; the lodging less spacious; cleanliness would be less attended to. I take here the average results, which would vary in different circumstances with the desires of the people and the products of the place. A reduction from abundance to a rude subsistence would probably be attended by a ruduction in the mean duration of life—but to a comparatively small extent. A low standard might, however, be fixed upon, any fall below which would be accompanied by a certain reduction of the mean life of the people. The ratio would probably not be simple; but, to borrow an expression from the mathematics, the one fact would be a *function* of the other: the possibility of the equation may notwithstanding be conceived under this simple form—

$$\frac{income}{drink + food + physic + clothing + firing + lodging + cleansing} = r;$$

and putting N for income (in money), C for the aggregate cost (in money) of the seven necessaries of life, and L for the mean physiological duration of life, the equation is $\frac{N}{C} L = L'$; L′ being the mean life in the particular circumstances.

Assume the cost of a full supply of subsistence for a laborer in the country to be 50*l.* a-year, that the income of his family is 50*l.* and that he is in such favorable circumstances altogether that he attains the natural mean term of life, the equation will be $\frac{50}{50} L = L$. But let the income be reduced to 40*l.*, and if the ratio be simple, the equation will be $\frac{40}{50} L = \cdot 8\ L$; or ·8 L will be the mean life of laborers in the altered circumstances. If the mean natural life = 56 years it will be reduced to 45 years, which is the present mean life in the best country districts.

"It would be exceedingly interesting to have several series of observations on the incomes of the laboring population in town and country, in different circumstances, together with the cost of the required quantities of the necessaries of life. The effect on the mean life of the people could then be determined. These observations will, we may hope, be made. It is, however, certain, that a portion of the town population has not a full supply of the necessaries of life; but whether we compare the gross incomes of the inhabitants of towns and of the country, or the wages of laborers and artisans, it cannot be admitted that the command over the necessaries of life is in favor of the country population, which has been for many years sending emigrants in the prime of life to the towns, where they would scarcely become settlers if their wages were lower and subsistence less easily procured than in their birth-places.

"The other influences which affect health and life are the soil and atmosphere, climate and seasons, winds, temperature, hygrometricity and electricity. In particular places these may differ considerably in England. But the populations of the country and town districts, which have been compared, are in every variety of situation, so that whatever the mortality occasioned by excessive heat and moisture, cold and dryness, may be, it must fall very equally upon the town and the country districts.

"There remains another class of causes; atmospheric impurities, organic matter undergoing decomposition, and the contagious principles of zymotic diseases.

"The atmosphere, besides oxygen and nitrogen, contains carbonic acid and aqueous vapor. The mean proportion of carbonic acid is 49 volumes in 100,000 volumes of air, according to the younger Saussure; who also states that it varies from 37 to 62 volumes. Mr. Coathoupe has estimated the quantity of air which passes through the lungs of a man of ordinary size in 24 hours at 267 cubic feet, of which nearly 8 per cent. per volume, or 21 feet, are exchanged for carbonic acid;* the bulk would be equivalent to a cube of 6·4 feet. If, for a mere illustration, we assume that on an average 16 cubic feet of the gas are thrown off from the skin and lungs of each person, 30 millions cubic feet will be exhaled daily by the population of the metropolis, distributed over an area of about 1951 millions square feet. Add the amount of the same gas formed by animals of every kind,—fires, lamps,—and multiply the sum by 100, inasmuch as respiration for several hours in air which contains one or two per cent. of carbonic acid has been found to produce alarming effects (Broughton), and it will be seen that without effectual means of dispersion the amount of air vitiated in the metropolis, by this element alone, would be by no means inconsiderable.

"Is the excessive mortality, then, in towns, to be ascribed to the accumulation of carbonic acid, or of any similar gas, which is so rare as to be innoxious in open districts? It was natural, when it had been discovered that carbonic acid mixed in air destroyed animals, and after many accidents in mines and closed chambers had been traced to this agent, to ascribe the excessive mortality of towns to the same cause. Further investigation must show, I think, that it has but a small share in raising the mortality of towns, the provision for its dispersion is so complete.

The velocity with which the air rushes into a vacuum is the same as that of a body that has fallen from a height of about 26,000 feet (nearly five miles); or, according to the Torricellian theorem, putting v for velocity, g for the velocity acquired in one second by a body falling freely, and h for the height of the homogeneous gaseous column, $v = \sqrt{2\,g\,h}$. As $g = 32{\cdot}19$ feet, and $h = 26{,}000$, the velocity is 1296 feet in a second.† But the height of the column is inversely proportional to the density of the gas; the reciprocal of d (= the density) must therefore be put under the radical, in applying the formula to any other gas besides atmospheric air, which is taken as unity. The density of carbonic acid is $d = 1{\cdot}524$; and $v = \sqrt{2\,g\,h\frac{1}{d}} = 1049$. The velocity with which carbonic acid rushes into a vacuum is 1049 feet a second. In applying the formula to different gases, $2\,g\,h$ might remain invariable; d (= the density of the respective gases) would vary, and the relation of v (the velocity) to d (the density) is such that v would vary as the square root of the reciprocal of d. The density of hydrogen is ·069, and its diffusive velocity is 4920 feet a second, or 3·8 times the diffusive velocity of atmospheric air, 4·7 times that of carbonic acid; the diffusive velocity of carbonic acid is eight-tenths that of air.

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* Graham's Chemistry, p. 1016.

† Poisson estimates the height of the atmospheric column at the temperature of zero, pressure 0·76 metre, to be 7950 metres.

"Dalton discovered that carbonic acid entered the space occupied by hydrogen in the same proportion as if no hydrogen had been present. He inferred that gases do not, like liquids, exclude each other, and this is now admitted. So that if an air-tight chamber full of carbonic acid communicate with the external air, the same quantity of air will find its way into the chamber as if no carbonic acid gas were present; and if water were introduced, the same amount of aqueous vapor would occupy the space as if neither gas was present. The elasticity and density of the atmosphere of the chamber would be the sum of the densities and elasticities of all the gases and vapors. It has been assumed here, to simplify the statement, that while the atmospheric air entered, the carbonic acid gas remained; but it would in fact go out, for the same reason that the air entered in order to set the gases without and within in equilibrium."

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"The Professor remarks that the result of diffusion is, that gases enter space in the same quantities ultimately as if no other gas existed in the space: but that 'the diffusive process takes place in different gases with very different degrees of rapidity. Thus, the external air penetrates into a 'diffusion tube' with velocities denoted by the following numbers, 1277, 622, 302, according as the diffusion tube is filled with hydrogen, with carbonic acid, or with chlorine gas.'* This is quite in conformity with Dalton's doctrine, that 'the resistance which the particles of one gas offer to those of another is of a very imperfect kind, to be *compared to the resistance which stones in the channel of a stream oppose to the flow of running water.*'† One gas does not pass through another with the same velocity as it would through space; and the various retardations of the velocity of its passage through different gases is no more a deviation from the law than the fact mentioned by Professor Graham,—that the gases go more slowly through cork than through stucco. That the presence of air retards the diffusion of vapor is evident from Leslie's experiment for freezing water under the air-pump, in which the air is removed to facilitate the passage of vapor, from the surface of the water to the sulphuric acid. All the phenomena of evaporation into the atmosphere establish the same fact. The pouring of carbonic acid from one vessel into another proves equally well that the velocity of its diffusion is retarded.

"To form an idea of the dispersion of the carbonic acid gas generated in towns, according to the law in pneumatics, assume that 1000 cubic feet are formed per second; it will be equal to a cube of 10 feet. Now if this volume of carbonic acid were in the centre of a vacuum it would disperse in every direction at a velocity of 1049 feet a second. It is nearly the velocity of sound. A particle would fly a mile in 5 seconds, 12 miles in a minute. The velocity of a 'high wind' is 50 feet a second, 'a hurricane that tears up trees' 147 feet a second—one-seventh of the velocity with which carbonic acid rushes into a vacuum. If the gaseous film evolved every second over the area of the metropolis were pure air, it would only move slowly away, by the impulse with which it was thrown off and because it was lighter than the atmosphere: but as it is carbonic acid, the surrounding atmosphere is a vacuum, into which its rush is opposed only by the small quantity of carbonic acid gas existing, and the sluggishness of the aërial particles. The rapid removal of this gas from cities is effected by a force much greater and altogether independent of the winds. It is carried rapidly through the air, until it is fixed again by vegetation and exchanged for oxygen, which flows into the atmosphere of cities, according to the same law, to replace the oxygen consumed.

"These results are confirmed by chemical analysis of the air. The differences in the quantity of carbonic acid in winter and summer, night and day, are ascribed by Dumas to more of the gas being absorbed, retained, and brought down by rain in cold than in warm weather. They are meteorological changes extending over all the atmosphere. Chemists have hitherto failed to detect any

"* Graham's Elements of Chemistry, pp. 75, 76.

"† Graham's Elements, and Manchester Memoirs, vol. v.

excess of carbonic acid gas in cities. A commission is now sitting in Paris, engaged in the analysis of the atmosphere by Dumas' method, which is held to yield the most accurate results. I am not aware that the air of any place in England has been analyzed by the new method; but the observations in other countries show no diminution of oxygen in the city air. Thus the oxygen was to the nitrogen in the air of Paris as 230·0 to 770·0 (by weight); and on Faulhorn, in Switzerland, 8767 feet above the level of the sea, as 229·7 oxygen to 770·3 nitrogen.*

"Carburetted hydrogen and sulphuretted hydrogen arising from graves are less dense, and are dispersed more rapidly than carbonic acid: scarcely a trace of them can be detected.

"Carbonic acid and other noxious gases can, as is well known, be confined for a time in well-closed apartments, and oxygen can be excluded; but the dispersive force is so great, that chemists have seldom succeeded in detecting any difference in the proportions of the gases, even in the air of crowded hospitals. If any difference exist it must be small, and might have a slight effect on health; but, as the experience of our collieries proves, would not raise the mortality to anything beyond a fraction of 40 per cent.; besides, the country is exposed as well as the town population to the influence of deleterious gases in the close chambers of small cottages.

It is, then, to matters suspended in the atmosphere of cities that the excessive mortality must be referred. Smoke is heated gas, carrying with it unburned particles in suspension; the carbonic acid is scattered immediately by its diffusive velocity, and the particles of solid matter, carried up by the heated air into the sky, disperse, become invisible, and fall around insensibly, in a clear atmosphere or at a distance when there is any wind. If watery vesicles are also suspended in the air, the column of smoke ascends but a little, carbonic acid is absorbed, the carbon imbibes water and air, it mixes with the watery cloud, and all the phenomena of a London fog are produced. These fogs form apparently when the temperature of the Thames is higher than the temperature of the air,† which is calm

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"* The proportions in the subjoined table are by weight; the aqueous vapor and carbonic acid were abstracted. They are all the analyses that have yet appeared in the *Comptes Rendus* of the French Institut.

	Oxygen.	Nitrogen.	Chemists.
Paris,	230·0	770·0	Dumas.
Brussels,	230·6	769·4	Stas.
Geneva,	229·8	770·2	Marignac.
Berne,	229·5	770·5	Brunner.
Faulhorn,	229·7	770·3	Dumas.
Groningen,	229·9	770·1	Verver.
Copenhagen,	230·1	769·9	Lewy.
North Sea,	226·0	774·0	Id.
North Sea,	231·2	768·8	Id.
Elsinore,	230·4	769·6	Id.
Guadeloupe,	226·8	773·2	Id.
Guadeloupe,	231·4	768·6	Id.

"Recherches sur l'Air, by M. Lewy, Copenhagen. Comptes Rendus, t. 17. Aug. 1843, p. 235."

"† I believe that no comparative observations have hitherto been made in London on the temperature of the air and river; but Professor Fournet has shown, from the observations of four years at Lyons, on the confluence of the Rhone and Saône, that the temperature of the rivers, from November to March, is considerably higher than the mean temperature of the air. The fogs set in in November. *Météorologie* de

(or if there be any wind it is nearly saturated), the fogs generally disappearing as the temperature of the air is raised by the sun.

"That the smoke is irritating to the air passages, injurious to health, and one of the causes of death, to which the inhabitants of towns are more exposed than the inhabitants of the country, is probable; but if the effect were very considerable it would be most evident in the dense fogs, when the atmosphere is loaded with smoke, and is breathed for several consecutive hours by the population—men, women, and children. Now we have never observed any connection between the increase of the mortality and the London fogs. The diseases, again, caused by smoke must be of a mechanical nature, and affect the lungs and air-passages; it may increase the pulmonary diseases, but will assuredly not produce scarlatina, measles, typhus, and other diseases which prevail in towns.

"There is another class of agents. In a school-room, say there are 100 children: a child is brought in for a few hours, in a state of scarlatina. The children have not had the disease before: 10 of them are affected. If 10 children with scarlatina were introduced, and the room were ill ventilated, 30 or 40 of the children might be affected. If the sick children had small-pox, measles, or hooping-cough, instead of scarlatina, those diseases would be communicated. If dysentery, cholera, typhus, and plague patients are frequently introduced into barracks or workhouses, a certain proportion of the inmates are affected. The numbers who are attacked by an infectious disease depend upon—1st, the susceptibility of the persons exposed (if the children in the school-room had previously had small-pox, or been vaccinated, a very small proportion of them would be infected by breathing the small-pox atmosphere); 2dly, on the strength of the zymotic matter, which varies in the stages and forms of the several diseases; and 3dly, on the density and ventilation of the room. If 100 healthy persons were placed in a room with 10 sick persons, and the room were small, the doors and windows closed, the greatest number possible would be infected; if they went through the disease in the same circumstances, the mortality would also be the greatest possible. So if public buildings, in which crowds of people assemble, were well supplied with pure air, it would be quite safe to resort to them; but as opera-houses, theatres, concert-rooms, lecture-rooms, Exeter-hall, chapels, churches, and large workshops, are not yet provided with proper mechanical means of ventilation, and the air is not withdrawn with sufficient rapidity when they are filled with people, the walls reek with the breathed atmosphere; and if any epidemic, such as influenza, be rife, several persons affected with the complaint are present, and great numbers are infected; the headache and oppression which come on are the first and often not the last symptoms. This is literally 'taking poison;' but it is generally called 'taking cold,' through the common prejudice of ascribing all our maladies to sensible causes. It is an error to suppose that rooms are healthy when they are not hot; but the heat which is generated may increase the effect of the zymotic matter.

"Certain substances, then, taken from the bodies of the sick, produce, when introduced into other bodies, a series of phenomena, developed according to a determined type: *Varioline* (small-pox matter), for instance, produces small-pox. These substances have the same relation to diseases as ferments have to well known chemical processes. Several of them float in the air, and form an atmosphere, the density of which is in proportion to the proximity of the bodies by which it is given off, and to the greater or less facility for escape. The 267 cubic feet of air passing through the lungs daily, if charged with these particles, will bring them into contact with the blood.

"What are the physical properties and chemical nature of these morbific par-

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Kaemtz.—(Note by French translator, *Ch. Martins*, p. 111.) Kaemtz remarks (p. 113) that '50 lbs. of incandescent carbon, exposed in the open air, will weigh from 105 to 107 lbs. in the course of a few days; a fact well known in powder-mills. Hence the particles of carbon in escaping from the chimney absorb air and become heavier. Nevertheless, the wind may carry them to a distance; but if the air be calm and humid, the specific gravity of the particles augments rapidly, they mingle in the fog, and spread over the neighborhood.'

ticles? Chemistry has left us much in the dark; but, until English chemists enter seriously upon the investigation of this subject (which is of inconceivable importance), we may accept the well-supported hypothesis of Professor Graham:—

"'Of the odoriferous principles of plants, the miasmata of marshes, and other matters of contagion, the presence, although sufficiently obvious to the sense of smell, or by their effects upon the human constitution, cannot be detected by chemical tests. But it may be remarked, in regard to them, that few or none of the compound volatile bodies we perceive entering the atmosphere could long escape destruction from oxidation. The atmosphere contains, indeed, within itself the means of its own purification, and slowly but certainly converts all organic substances exposed to it into simpler forms of matter, such as water, carbonic acid, nitric acid, and ammonia. Although the occasional presence of matters of contagion in the atmosphere is not to be disputed, still it is an assumption without evidence that these substances are volatile or truly vaporous. Other matters of infection, with which we can compare them, such as the matter of cow-pox, may be dried in the air, and are not in the least degree volatile. Indeed, volatility of a body implies a certain simplicity of constitution and limit to the number of atoms in its integrant particle, which true organic bodies appear not to possess. It is more probable that matters of contagion are highly organized particles of fixed matter, which may find their way into the atmosphere, notwithstanding, like the pollen of flowers, and remain for a time suspended in it; a condition which is consistent with the admitted difficulty of reaching and destroying those bodies by gaseous chlorine, and with the washing of walls and floors as an ordinary disinfecting practice.'*

"It is quite certain that animal matter is exhaled from the pulmonary and cutaneous surface. The particles are small and rare; but, according to Graham, they are inelastic; they are without that diffusive force inherent in gases and vapors, and will therefore only spread through the air like vesicular water, or fine dust over smooth water. When the breath is expired in winter, it passes from the lung with a certain force; but it soon separates into two portions; 1st, the carbonic acid, which would fall to the ground if it were not dispersed in all directions by the diffusive force; and 2dly, the aqueous vapor which ascends with the heated air and particles of animal matter; the air to mix in air, the water to be condensed, fall, or be dispersed, and the animal matter to float, fall, or be decomposed in the air. In a crowded room, theatre, or church, the carbonic acid is dispersed through every aperture at a retarded velocity. The gas exhaled from the body does not ascend to the roof, as is sometimes supposed, when the temperature of the room is low, for the specific gravity of carbonic acid is 1·524; and, as the density is inversely as the volume, and gases expand 1-493d part (Rudberg) for every degree of Fahrenheit, it only becomes lighter than air when 258 degrees hotter. The carbonic acid emitted from the lungs at a temperature of 100° is more than a third heavier than the air at 40°; its density is 1·359, the air being 1·000. The carbonic acid emitted by the candles or gas of a room is more than as light again as air; but it soon cools and grows heavier, and, if it were not for the diffusive force, would fall to the ground. Gases cannot remain permanently at the upper or lower parts of any apartment or edifice, in other proportions than they exist in the atmosphere; it would be easier for a torrent to stand still on a mountain declivity. They disperse, and can only accumulate around their source when generated rapidly. But particles in suspension†—inelastic, smaller, lighter than motes in the sunbeam—stagnate in air, and can only fall to the ground, or be carried away with the fluid in which they float. Smoke and organic atoms are removed from a room in the same way—by replacing all its gaseous contents; and particles of both are left ad-

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* Graham's Elements of Chemistry, page 281. Henry on Disinfection, Phil. Mag., second series, vol. x, page 363; xi., pages 22, 207 (1832).

† See some good remarks by Kaemtz on the suspension of clouds.—*Météorologie* (French translation), p. 121.

herent to the exposed surfaces, but in quantities smaller in proportion to the velocity of displacement.

"Every population throws off insensibly an atmosphere of organic matter, excessively rare in country and town, but less rare in dense than in open districts; and this atmosphere hangs over cities like a light cloud, slowly spreading—driven about—falling—dispersed by the winds—washed down by showers. It is not *vitalis halitus*,* except by origin, but matter which *has lived*, is dead, has left the body, and is undergoing by oxidation decomposition into simpler than organic elements. The exhalations from sewers, churchyards, vaults, slaughter-houses, cesspools, commingle in this atmosphere, as polluted waters enter the Thames; and notwithstanding the wonderful provisions of nature for the speedy oxidation of organic matter in water and air, accumulate, and the density of the poison (for in the transition of decay it is a poison) is sufficient to impress its destructive action on the living—to receive and impart the process of zymotic principles—to connect by a subtle, sickly, deadly medium, the people agglomerated in narrow streets and courts, down which no wind blows, and upon which the sun seldom shines.

"A small quantity of organic matter can only escape with the carbon and aqueous vapor (37½ ounces daily, according to Dalton) from the skin and lungs. The presence of a putrid atmosphere is perceived by the senses in parts of all towns; and Liebig, by operating on large masses of the atmosphere, has obtained ammonia, which is a product of the putrefaction of animal matter. The existence in the atmosphere of organic matter is therefore incontestable; and as it must be most dense in the densest districts, where it is produced in greatest quantities, and the facilities for decomposing it in the sunshine and sweeping it away by currents of wind are the least, its effects—disease and death—will be most evident in towns, and in the most crowded districts of towns.

"It is to this cause, it appears to me, that the high mortality of towns is to be ascribed; the people live in an atmosphere charged with decomposing matter, of vegetable and animal origin; in the open country it is diluted, scattered by the winds, oxidized in the sun; vegetation incorporates its elements, so that, though it were formed, proportionally to the population, in greater quantities than in towns, it would have comparatively less effect. The means of removing impurities in towns exist partially, and have produced admirable effects; but the most casual observation must convince any one that our streets were built by persons ignorant as well of the nature of the atmosphere, as of the mortality which has been proved to exist, and is referable to causes which, though invisible, are sufficiently evident. The difference of the polluted and the pure atmospheres described by Milton is felt:—

> 'As one who long in populous city pent,
> *Where houses thick and sewers annoy the air,*
> Forth issuing on a summer's morn, to breathe
> Among the pleasant villages and farms
> Adjoin'd, from each thing met conceives delight.'

"I proceed to show, not only that the mortality is greater in town than in country districts, but that the mortality of town districts has a certain relation to their density. The relation exists strictly between the density of the organic particles suspended in the atmosphere and the mortality; but the density of the matter in the air cannot be determined directly, for obvious reasons; and with the same number of persons on a square mile, the number of particles in the atmosphere will vary in different districts, according as the agency for removing the refuse matter, by sewerage and other means, is more or less efficient. Still by taking districts, which, if the circumstances are not quite the same, and the populations are not entirely homogeneous, will have atmospheres which bear a certain relation to the numbers living on the same area, it will not be difficult to obtain interesting results. The area of the metropolitan districts is about 70

* Pliny.

square miles; and there were (in 1841) 26,737 persons to the square mile, or one person to an area of 116 square yards, and one inhabited house to 865 square yards. In the east and west London districts (the city of London without the walls) the density is *one* person to every *sixteen square yards* of area, = four yards square. In estimating the density of the zymotic atmosphere likely to be produced by an individual, not only the square upon which he stands, but the elevation of the space over him, or the height to which particles ascend, should be considered. This space in the open air is invariably the same in every district; in-doors it is limited by the volume of air in the houses. In default of direct observations upon this interesting subject, it might be assumed that in districts at all similar the house accommodation is in proportion to the *specific population*, a term employed by Prony to designate the population to a given square area, but which, upon the assumption just mentioned, is expressed more commonly in England by 'density of population.'

"The occupations of men in towns are mostly carried on in-doors, often in crowded workshops, while the agricultural laborer spends the greater part of the daytime in the open air. From the nature of the particles of animal matter thrown into the atmosphere it is impossible to place the artisan in circumstances as favorable as the laborer; the sun and wind destroy and waft away the breath as soon as it is formed; but in the workshops of towns the men are shut from the sun, and no streams of the surrounding air carry off the steaming breath and perspiration, so that the mortality of working men in the metropolis is much greater than the mortality of women at the corresponding ages. In endeavoring to estimate the effects of density of population in districts I shall, to simplify the inquiry, take examples from the observations on females.

"The metropolis presents the most favorable opportunity for investigating the influence of density; it is an aggregate of masses of people in districts larger, more homogeneous, and more on an equality in respect to subsistence, than could be found elsewhere. The difference between district and district, street and street, house and house, is immense; but districts can be selected resembling each other, on the system of averages, in all important points, except density.

"The thirty statistical districts of the metropolis have been divided, in a subsequent table, into three groups, of different degrees of salubrity, each of ten districts. I take three from the class of districts in which the mortality is highest—Whitechapel, Shoreditch, and Bethnal-green. They are inhabited by very much the same class of people; the sewerage and supply of water are nearly the same; the value of assessed property is greatest in Whitechapel, less in Shoreditch, least in Bethnal-green; but the density is different, and the mortality is highest in the densest districts. Until the expectations of life have been calculated, the mortality may be employed.

Districts.	Annual Mortality of Females, (m).	Population to a Square Mile, (d).
Whitechapel, . . .	·02978	127,313
Shoreditch, ...	·02790	86,123
Bethnal-green, . . .	·02617	62,390

"The mortality was for the four years 1838–41. The mortality of males, and several other facts, are given in Tables, pp. 448, 449.

"It will be observed that the density of population is half as great again and the mortality one-fifteenth part higher in Whitechapel than in Shoreditch; so that the mortality does not increase in the same ratio as the density; and representing the density of the densest district (Whitechapel) by d', that of the least dense (Shoreditch) by d; the mortality of the densest district (Whitechapel) by m', that of Shoreditch by m, the proportion does not hold:—

$$m' : m : : d' : d.$$

"Upon reducing the terms to the form of an equation, it will be seen that the mortality increased as the sixth roots of the densities; for

$\frac{m'}{m} = \sqrt[6]{\frac{d'}{d}}$; and, consequently,

$$m' : m :: \sqrt[6]{d'} : \sqrt[6]{d}.$$*

We have, then, the formula $m' = \sqrt[6]{\frac{d'}{d}}\, m$, which is the mortality of Whitechapel, expressed in terms of the mortality of Shoreditch, and the densities of Shoreditch and Whitechapel. By substituting the numbers expressing the mortality of Whitechapel, and the densities of Whitechapel and Bethnal-green in the formula, the equation is

$\sqrt[6]{\frac{62390}{127313}} \times \cdot 02978 = \cdot 0264$ for the mortality of Bethnal-green, the mortality given by direct observation having been ·0262.

"We may now compare three of the wealthiest districts of the metropolis, differing in density.

Districts.	Annual Mortality of Females, (*m*).	Population to a Square Mile, (*d*).
St. James, . . .	·02145	145,059
City of London, . .	·01968	94,488
St. George, Hanover-square,	·01707	39,018

"To ascertain whether the mortality bears the same ratio to the density in these districts, let this question be proposed:—

"Given the mortality of St. James's district = ·02145; the density of the population 145059 to a square mile; the density of St. George, Hanover-square, 39018 to a square mile, what was the mortality of St. George, Hanover-square?

"Here $\sqrt[6]{\frac{d}{d'}}\, m' = m$; and substituting the figures in the formula, the result agrees very exactly with the results of direct observation; $\sqrt[6]{\frac{39018}{145059}} \times \cdot 02145 = \cdot 0172$, the mortality of St. George, Hanover-square, the mortality observed having been ·0171.

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* "Say that the density of one district is to that of another as 729 to 64, then, according to this formula, the mortality will not be as 729 to 64, but as 3 to 2, numbers which are the 6th roots of 729 and 64, for 3 multiplied six times into itself is 729, and 2 multiplied six times into itself is 64. If 3 times 3 = 9, and 9 × 9 × 9 = 729, then 9 is the cube root of 729; 3 the square root of 9: consequently 3 is the square root of the cube root of 729; as 2 is the square root of the cube root (4) of 64, ($a^{\frac{1}{2}\times\frac{1}{3}} = a^{\frac{1}{6}}$ evidently in all cases.) The mortality is, according to this law, in the ratio of the bicubic roots of the densities. The ratio is most readily ascertained by the use of logarithms; with which, however, the preceding considerations enable us to dispense. For let the population to a square mile in one district be 15,625, in another 4,096, then the cube roots, and the square roots of the cube roots, can be immediately found in *Barlow's Tables of Squares, Cubes, &c.*

Numbers.	Cube Roots.	Square Roots of the Cube Roots.
15.625	25	5
4,096	16	4

The mortality in two such districts would, by the difference of density, be as 5 to 4.

"The mortality of the city of London deduced from the mortality of St. George, Hanover-square, and the densities of the two districts is

$$\sqrt[6]{\frac{d'}{d}}\, m = m'\text{; or, } \sqrt[6]{\frac{94488}{39018}} \times \cdot 01707 \cdot 0198.$$

"The density of a district is deducible from the same formula. It may be expressed, however, differently; namely, by the number of square yards to a person, and denoted by y' in the district where the number of square yards to a person is greatest: then

$\frac{m}{m'} = \frac{\sqrt[6]{y}}{\sqrt[6]{y'}}$; and $\left(\frac{m}{m'}\right)^6 = \frac{y}{y'}$; consequently, $y = \left(\frac{m'}{m}\right)^6 y' =$ the number of square yards to a person in the least dense district.

"Given, the annual mortality in St. James $\left(\frac{1}{47}\right)$; in St. George, Hanover-square $\left(\frac{1}{59}\right)$, and the number of square yards (y') to a person (79) in St. George; how many square yards were there to a person in St. James's district?

$$\frac{\frac{1}{59}}{\frac{1}{47}} = \frac{47}{59}\text{; and } \left(\frac{47}{59}\right)^6 79 = 20,$$

the calculated number of square yards to a person in St. James's district. The number of square yards derived from direct observation is 21 (*see* Table, p. 436).

"If the averages of the three groups of metropolitan districts are compared, the influence of density is immediately seen, the different degrees of affluence being compensated for to a certain extent.

	Annual Mortality of Females, (m).	Density of Population.
	One in	Square Yards to *one* Person, (y).
10 unhealthiest statistical districts, .	36	32
10 medium districts, . . .	41	102
10 healthiest districts, . .	49	202

"The theory applies to the two extreme groups only; and the number of persons to one death in the *unhealthiest* districts may be deduced from the number of persons to a death in the *healthiest* districts, and the number of square yards to a person; $\sqrt[6]{\frac{32}{202}} \times 49 = 36 =$ the number of living to a death in the unhealthiest districts. This is but a slight modification of the previous equation. In a complicated question of this kind, it would be premature to assume that the mortality of towns always increases, *cæteris paribus*, in the ratio of the 6th roots of the densities: but the formula may now be employed as an approximation in sanitory inquiries.

"It has been mentioned that the different town districts comprise variable proportions of surrounding country; and in comparing the mortality, the proper course which has been generally pursued, is to exclude the rural registrars' districts. But if the inquiry is into the influence or efficiency of the sewerage, &c., and the population is twice as dense in one town as in the other, what course has the inquirer to pursue? To take an instance:—The annual mortality of females in Hackney is ·01789, in Islington ·01989; the assessed annual value of property, divided by the population, in both districts, is 3*l.* 16*s.*; and the condition of the inhabitants, as regards subsistence, must be nearly the

same; but there are 11,686 inhabitants on a square mile in Islington, 6,847 in Hackney. This difference in density alone would raise the mortality of Islington 1-11th part above that of Hackney. Introducing the numbers in the equation—

$$\sqrt[6]{\frac{11686}{6847}} \times \cdot 01789 = \cdot 01956,$$

the mortality of Islington. The mortality of Islington, derived from direct observation, is ·01989; a slight excess, which must be ascribed to differences of age, to the less effective sewerage of Islington, or to some other cause independent of mere density. The formula thus eliminates the element of density from the analysis of the causes of insalubrity.

"'It may be stated in general,' says Dr. Price, 'that whereas in great towns the proportion of inhabitants, dying annually, is from 1 in 19 to 1 in 22 or 23, and in moderate towns from 1 in 24 to 1 in 28; in country parishes and villages, on the contrary, this proportion seldom exceeds 1 in 40 to 50.'*

"The terms 'great towns,' 'moderate towns,' and 'villages,' are not sufficiently specific for our present purpose; but the general principle announced by Dr. Price is correct—that the mortality of towns has a tendency to increase at the same time as they extend. It is a particular case of the law of density. The displacement of the atmosphere of towns is effected by ascending columns and by circumfusion; it must diminish as the proportion of the surrounding to the enclosed houses decreases. The four sides of a solitary house are exposed to the currents of the atmosphere; of 16 houses built on equal squares, in the form of a square, 12 face the open country, 4 are completely enclosed. Of 10,000 houses on a square area, 9604 are enclosed; a city of 250,000 houses built on equal squares, and in the form of a square, would be surrounded by only 1,996 houses facing the country. The ratio of the total to the exterior houses built on a square area, if n express the number on a side, will always be $\frac{4(n-1)}{n^2}$; and the proportion of the exterior houses will diminish rapidly as n increase in all other polygonal forms as well as squares. That this disadvantage and that of density can be counterbalanced is seen by the fact that while the population of English towns has increased, the mortality has fallen in the largest, below the standard fixed by Dr. Price for moderate towns.

"It is proved beyond doubt that, if the population be the same in other respects, an increase of density implies an increase of mortality; and that the ratio of increase in the mortality is as certain roots of the density. If a further and more extended inquiry, into which I have not time now to enter, should confirm the principle that the mortality in towns† is as the 6th roots of the density of the population, it will be time enough to ask why this should be the particular ratio. But the chemists must first discover means of determining the density of the atmosphere of organic matter, which may be called the *zymotic atmosphere*, in different districts. The density of population is no strict measure of the density of the zymotic atmosphere; nor, admitting that the matter is a poison, does the relative density of the population express the relative quantities inhaled in a given time; if it did, it is improbable, and contrary to all analogy, that the mortality should increase in the simple ratio of the dose. The exact effect of increasing doses of poison has not been accurately determined; but it is well known that small quantities of all poisons are taken with impunity, and that the dose of arsenic, opium, or prussic acid may be increased up to a given point, at which the disease produced is severe or fatal. Four drops of prussic acid, diluted, may be taken with safety, when four drops more would kill a certain number of persons. How large, or rather, how small, the dose of matter may be which will produce a zymotic disease, it

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* First Additional Essay, 1775. Works by Morgan. Seventh Edition, vol. ii., p. 218.

† I say 'towns,' because the application of the formula must have a limit.

is impossible to say; but if a minute diluted charge of *vaccinine* (vaccine lymph) produced cow-pox, say one time in one hundred, it would be an interesting problem to determine, by doubling the quantity, in what ratio the proportions infected increased.

"To show the application of our method of inquiry to the determination of the influence of different causes on the mortality, by particular instances, let us place two districts of the metropolis in juxtaposition:

	Mortality of Females.	Population to a Square Mile.	Persons to a House.	Mean Value of Rated Property to each Person.
				l. *s.*
St. George, Hanover-square, .	·01707	39,018	8·7	9 2
Whitechapel, . . .	·02978	127,313	8·1	2 16

"The mortality of Whitechapel is to that of St. George as 1·74 to 1; in other terms, it is 74 per cent. higher. The population of Whitechapel being the densest, the mortality is raised from that cause in the ratio $\sqrt[6]{\frac{d'}{d}} = \sqrt[6]{\frac{127313}{39018}} = 1{\cdot}218$, or nearly 22 per cent.: with the same density the mortality of St. George would be ·02079. The difference in the command over the necessaries of life in the two districts is sufficiently well marked by the values of rated property, which, divided by the population, gives 9*l.* 2*s.* to each person in St. George, Hanover-square; 2*l.* 16*s.* in Whitechapel. In referring to the effect of subsistence, I proposed to affix to the expectation of life a coefficient, which would be unity when the income supplied drink, food, physic, clothing, firing, lodging, cleansing; and a fraction when the income was less than sufficient for these purposes. For the present example, let us *assume that the two districts represent stationary populations;* then where the expectation of life is 34 years, the annual mortality (with the qualifications explained in the Report) is $\frac{1}{34} = {\cdot}02978$; the mortality is, therefore, the reciprocal of the expectation of life; and the reciprocal of the coefficient of subsistence must be applied to the mortality, which increases as the duration of life diminishes. The mortality, ·01707, in St. George, Hanover-square, is the same as that which would prevail in a stationary population attaining the mean age of 56, which was taken (p. 411) for the *average* physiological duration of life; the mortality would be raised to ·02079 by the increase of density. Now it is pretty certain that the ratio of ·02079 : ·02978 is more than the coefficient of subsistence; for, in the poor districts of the country, the mortality is increased to no such extent. We will, therefore, take the reciprocal of the same coefficient as for the country districts $\left(\frac{10}{8} = 1{\cdot}25\right)$, and apply it to ·02079, which it raises to ·02598. The mortality observed having been ·02978, this leaves ·00380 of the mortality unaccounted for, to be ascribed to the sewerage, slaughter-houses, dirty streets and courts, throwing more effluvial matter into the atmosphere in Whitechapel, where it accumulates, instead of being carried off, as a considerable portion of it is in St. George, Hanover-square. Let d = the coefficient for the density of the population, and o for the quantity of the organic particles generated in a given time; $\frac{C}{N} = s$ = the reciprocal of the coefficient of subsistence; then the equation of mortality will be $(d)\ (o)\ (s)\ m = m'$; the m representing the natural mortality in the most favorable circumstances, and m' the mortality actually occurring in districts. For an example take $m = {\cdot}01705$, and substituting the figures of the other coefficients, the equation becomes $(1{\cdot}218) \times (1{\cdot}146) \times (1{\cdot}25) \times ({\cdot}01707) = {\cdot}02978$, the mortality in Whitechapel. For the (d, o) may be substituted $z = 1{\cdot}396$ = the

ratio of the increase of mortality caused by a given density of the zymotic atmosphere, to which the product of (d) by (o), is an approximation. The coefficients would be probably both of the form $\sqrt{\frac{z'}{z}} \cdot \sqrt{\frac{s}{s'}}$, whatever may be the particular value of the radicals.

"I give this as an example of the methods to be employed in estimating the influence of particular agents on the mortality, and have assumed the numbers in the coefficients, without pretending that they are correct. These coefficients can be determined only by careful *observation* and analysis; and instead of the mortality at all ages, the *expectation of life* should be employed to furnish exact results. At a future time we shall be able to calculate these expectations of life from sufficiently extensive data. Where the difference in the mortality is considerable, and there is only one cause in operation, its influence is easily determined; but such simple problems are seldom presented by nature; and upon reflection we can scarcely expect the science of living matter to be less difficult, less complicated, less in need of the resources of observation, experiment, and calculation than the science of dead matter—than astronomy, natural philosophy, chemistry. As a proof of the imperfect state of our methods—that a sanitory inquiry is not such an easy matter as some suppose, and that we are only *beginning* to understand these things, the conflicting opinions on such questions as the effects of Montfaucon on the health of Paris, and the medical evidence before the late Parliamentary Committee on burials in towns, may be referred to. The zealous Parent Duchatelet's methods would not have detected great differences in the mortality; and he might almost as well have attempted to guess by his sensations the mean temperature of Paris, as to pronounce an opinion on the duration of the people's lives employed in Montfaucon; yet his paper has been cited as decisive on the question of the influence of putrefying animal matter!

"We hope to be able to determine more exactly, at some future time, the effects of the different external agents on health and the duration of life; in the meantime the results already obtained suggest two or three practical inferences, which I respectfully submit to those authorities who have the means of carrying sanatory measures into effect, not as new, but as resting on a more extended series of observations and calculations than have before been at our disposal.

"The Appendix to the First Report of the Registrar-General had the following statement, which is borne out by the experience of the four subsequent years:—

"'The mortality of cities in England and Wales is high, but it may be immeasurably reduced. A good, general system of sewers, the intersection of the dense, crowded districts of the metropolis by a few spacious streets, and a park in the east end of London, would probably diminish the annual deaths by several thousands, prevent many years of sickness, and add several years to the lives of the entire population.'

"This passage, and others in the interesting sanatory reports of Drs. Arnott, Kay, and Southwood Smith, with the facts disclosed by registration, were brought by the inhabitants of the Tower Hamlets under the notice of Her Majesty's Government, who, in a very liberal and kindly spirit, introduced a bill into Parliament, and carried it, for founding the Victoria Park, 'in the east end of the metropolis." Wider streets have already been carried through the densest districts, and others are projected. The results which have been arrived at in this paper, establish in the fullest manner, the utility of these measures, and will, I hope, lead to their extension, not only in the metropolis, but in the other cities of the kingdom.

"All 'improvements' disturb property, and injure individual interests; they are therefore not only attended by expense, but open to positive objections, over which it can only be shown that the advantages preponderate. The 'improvements' which followed the fire of London were obtained at the expense not only of much loss of property and inconvenience, but of suffering and death; still, if the result was the annihilation of plague, which destroyed not the houses but the lives of the great mass of the population every ten or twenty years, drove

the Court and Parliament from London, spread through the kingdom, paralyzed trade, and was attended by a host of less dreaded maladies, which cut short and embittered life, the improvements were cheaply purchased. It has been stated that the narrow streets and overhanging houses, which are so common on the Continent, and of which too many traces remain in England, were erected in close contiguity, among other reasons, for the sake of the shade which they afforded in summer, and the shelter in winter; it is now known that this form of building, by obstructing the sunshine and atmospheric currents, is the cause of innumerable diseases; and notwithstanding the cost of any extensive alterations, there can be no doubt that it would be repaid by the amelioration of the health of the present and of future generations. To take down and rebuild whole districts at once, is, however, impracticable; the best that can be done in the circumstances, is to cut open spacious streets, which will carry and produce streams of air through the densest parts, drawing lateral currents from the adjacent narrow streets. Upon visiting some of the unhealthiest districts of the metropolis, I was greatly struck with the number of courts, or streets shut up at the end, particularly in the city of London without the walls; as the wind cannot pass through them, it is evident that the inelastic matter so abundantly generated, must be slowly replaced: why should not all these courts be opened at once? Compared with other more showy 'improvements,' the expense would be inconsiderable.

"The inhabitants of the 'rookeries,' which have been recently taken down, are dispersed. It would be interesting to know in what places they are now located. The objection to these measures is, that 'you take down the dwellings of the poor, build houses in their places for which the middle classes only can pay, and thus by diminishing the amount of cheap house accommodation, increase the rents, and aggravate the evil which you attempt to cure.' It is, undoubtedly, much easier to displace than to regenerate such a population—the sediment of vast cities which sinks into these obscure receptacles. If the displacement be gradual, however, the inconveniences of removal are diminished; and on a small scale it can have no influence on rents; the people dispersed, if they obtain money, obtain houses; or they return, like the Irish, home. The working classes, also, in cities, get lodged in the larger houses of the tradespeople and merchants, who, from the facilities afforded by omnibuses and railways, live every year in greater numbers out of town. But may not better dwellings for the artisan—models—be built in some of the new streets?

"Without entering into further detail, the facts in this paper and the accompanying tables, show clearly the necessity of renewing the atmosphere of towns as rapidly as possible, and diluting it to the greatest possible extent—certainly to a much greater extent than is now practised.

"The next suggestion refers to the diminution of the quantity of animal and vegetable matter thrown into the atmosphere of towns. The matter in question is derived from several sources; the *halitus** of men and animals, the soil of water-closets, burial-grounds, slaughter-houses, sewers, and streets. The *halitus* cannot be diminished in quantity, but the isolation of families in separate houses tends to prevent its accumulation; while the collection of persons in Robert Owen's parallelograms, and in public institutions, barracks, large schools, prisons, workhouses, must necessarily lead to the concentration of the respiratory excretion, particularly when, as is too frequently the case, the sleeping apartments are crowded, and no mechanical means are employed to facilitate ventilation. A public institution in the periodical epidemics, is like a town without party walls in a fire; nothing but a natural immunity can prevent the propagation of the zymotic action through the imprisoned atmosphere from person to person. According to the common estimate, 4 in 100 persons are sick, and as in the metropolis there are 75 persons in 10 houses, one person in every third or fourth house must be ill, while at the least, one in every eighth house will be afflicted with a disease of considerable severity. When the house is small, and

* Under *halitus*, the 'breath' and 'perspiration' are included in this paper.

perhaps dirty, it appears a great act of charity to remove a poor man suffering from fever, for instance, to a hospital, where he is provided not only with skilful medical attendance and with physic, but with the proper diet, warmth, and nursing. But have the benevolent founders of hospitals, and the medical officers who generally give their services gratuitously, sufficiently reflected on the probable consequences of bringing 50, 100, 300, or 400 sick bodies under the same roof, and into a few wards, which the sickly breath saturates? Have they ever compared the results of cases treated in hospitals, and in the poorest homes? When hospitals are crowded, the increase of mortality soon becomes striking. In the Hotel Dieu, at one time, 1 in every 4 persons who entered the pestilential walls died.* The mortality in the large metropolitan hospitals is twice as great as in the smaller country hospitals. This cannot be ascribed to defect of medical skill in the metropolis. Erysipelas and gangrene are still not infrequent in hospitals. The patient is fortunate who escapes phlebitis, or purulent deposits, after any serious operation in a hospital. It is the adventitious disease, and not the knife of the surgeon that is fatal. Are not the effects of general hospitals of the same nature as those that have more than once led to the evacuation of lying-in hospitals? I have rarely seen any statement of the mortality of cases of fever, small-pox, or any other disease, in which it did not appear that a person was twice as likely to die in a hospital as a person suffering from the same disease out of doors. It is generally said, 'Yes, we admit that our mortality is high, but the worst cases are sent in the last stage of illness to the hospital.' Is this certain? Will it account for all the difference? I doubt it very much. And I express the doubt in the hope that the question may be strictly, honestly, and conscientiously investigated by some qualified person who has time to devote to the subject. Until this be done, no attempt should be made to extend the system of assembling the sick in the same buildings.

"The expense of a patient in a hospital is from 7*s*. to 14*s*. a week. What would be the effect of allowing a married man in a fever the same nutriment at home, supplying him with an occasional nurse, and seeing that his house was well cleaned and kept comfortable? He would be surrounded by those who from natural affection loved him, instead of the dying and dead in the wards of a hospital. Would not this be an excellent season, too, for religion, charity, and science, to instil just principles and habits into the poor—to ameliorate their homes—so that the sick man may not, as when he returns to his family from a hospital, alive and convalescent, be exposed again to the same agencies as produced the previous attack?

"The space allotted to the sleeping-rooms of many public institutions in towns is too small. It should in no case be less than 8 feet cube (=512 cubic feet) to each person, with proper apertures for the removal of the breath. If the air were removed twice as fast, a room of 500 cubic feet would afford the same advantages with regard to health as a room of 1000 cubic feet; but it is a difficult matter to remove air from a room with a double velocity—more difficult and expensive than to make the rooms, at least on hand, of sufficient extent in the first instance. The mortality in crowded rooms, if carefully investigated, would no doubt be found to be in a certain inverse relation to the space, a death marking every degree of concentration of the expired atmosphere. The families of many artisans who get good wages lodge in a single small room, the rent of which is equal to that of a cottage in the country. This is a miscalculation on their part; on coming from the country they get in town higher wages, and could afford to pay for more expensive lodgings, but finding they *can* live in one room, do so, expending the surplus wages on dress, beer, and better food. To refrain from these would be to curb a natural appetite; they are only reminded of the want of room and pure air by a slight present uneasiness and discomfort. As they do not trace to their causes the deaths of their children, and disabling, dangerous attacks of sickness, they are led to look upon these events as inevita-

* Il périssait (18th century) le quart de ce qui y entrait, et la moitié du reste n'en sortait qu'après avoir echangé une maladie en elle-même de peu de durée contre une langueur sans remède.—*Eloges Historiques, par Cuvier.—Tenon.*

ble. With the limited income at his command, a working man in town is compelled to practise self-denial; now calculation shows that clean spacious lodging is one of the most necessary things to the maintenance of health, and that it is safer to forego other things, such as beer, which, though nutritious, is not indispensable, while spirits are more frequently injurious than beneficial.

"Cuvier's definition of life, or of a living thing, in its utmost generality, is so strictly applicable to a city, that 'London' may be substituted for '*la vie*' in the following sentence:—

"'La vie est donc un tourbillon plus ou moins rapide, plus ou moins compliqué, dont la direction est constante, et qui entraîne toujours des molécules de mêmes sortes, mais où les molécules individuelles entrent et d'où elles sortent continuellement, de manière que la forme du corps vivant lui est plus essentielle que sa matière.'*

"It would be easy to draw the parallel. But I wish merely to remark, that if it is of vital importance to procure the flow of a constant stream of sustenance into a city, it is equally important that the used matter, animal or vegetable, when it has entered and passed through the 'tourbillon,' should be restored back to its source, or be at least removed. In effecting this capital must be sunk; for art and labor are required, as well to return as to bring in the organized matter, yet it could not be expected that while people remained ignorant of the fact that the accumulation of effete matter is as fatal to a population as famine, they should be ready to incur any great expense for its removal.

"The present investigation fortifies the frequent recommendations which have been made in these Reports, and in all works on public health, with regard to sewerage. I shall not refer to the subject further at the present time, as it has occupied the special attention of the 'Health of Towns Commission,' comprising among its members distinguished persons largely interested in property, as well as gentlemen of great sagacity and scientific knowledge, from whom may be expected such practical suggestions on the subject as shall serve for the basis of an Act of Parliament, regulating, by some simple provisions, the entire architectural structure of towns.

"I have stated, in previous papers, that we should not rest satisfied with throwing the refuse of towns into the rivers, as this refuse matter, which in certain circumstances is a poison to man, is the nutriment of vegetation, and constitutes, with water, the difference between the barren desert and populous kingdoms. The more organic matter there is, the more subsistence—the cheaper food will be. If Mr. Martin's grand and magnificent conceptions cannot be carried out, the ingenious suggestion of Dr. Arnott deserves to be seriously considered. 'Engineers who pump from the Thames many miles above London, to supply pure water to the inhabitants, could as easily, by pumping away to any desired distance the fluid from the drains, supply the most valuable manure yet known—fluid town manure—to the horticulture and agriculture of the district; and the purity and beauty of the Thames, where it passes through London, would be preserved. Fluid manure, by sinking at once into the earth, is much less offensive to the neighborhood, and affects less the purity of the atmosphere, than an equal quantity of solid manure, spread, as it usually is, on the surface of the earth.'†

"Whether the remark in the last sentence is correct, we are perhaps not quite prepared to say; but no matter of the kind appears to be sensibly injurious to animals when it is in contact with vigorous vegetation, and is not present in excess. If the irrigation, in an instance referred to by Dr. Allison, convert the meadows around Edinburgh into 'putrid marshes,' it would be in the teeth of all analogy to infer that the practice is innoxious; but if it render the soil more fertile, and is not in excess as manure, it must be inoffensive to the health of Edinburgh. Upon the same principle, drainage, and all the improvements of agriculture, which tend to increase and invigorate vegetation, to the same ex-

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* *Règne Animale.*

† Dr. Arnott's Sanatory Report; *Local Sanatory Reports*, Scotland, p. 12.

tent, impress vitality on decaying matter, and promote the health of the population.

"Much of the putrefying atmosphere of English towns would be got rid of by removing the cattle markets, slaughter-houses, and manufactories of the animal remains to convenient, distant localities. At present, the greatest amount of putrid matter is accumulated in districts like Whitechapel, and the City of London without the walls, where the population is most dense, or the sewerage is most imperfect.

"For many purposes in which the health of the poor is more directly concerned, the metropolis should be treated like other aggregated masses of people—as one community. The injustice and inconvenience of a different course is shown by a reference to the returns of poor-rate in subsequent tables, from which I shall extract a few facts that have not obtained all the attention they deserve.

"The amount of money expended upon the relief of the poor (assuming the benevolence and kindly feeling to be the same in all districts) will depend upon two circumstances; 1st, the number and wants of the poor; 2d, the wealth and number of the rate-payers. If all the inhabitants were affluent, there would be no poor-rate, because there would be no poor; if all were destitute, no poor-rate could be levied. The poor-rate will be found to be the reciprocal of the ratio of the property and poverty—the givers and receivers; highest in the parishes where half are wealthy, half paupers; lowest where the great majority are poor or rich.

"In the metropolis, subdivided into a great number of parishes, the rich are accumulated in some districts, the poor in others; and the consequence is that, whereas in provincial towns, comprising a single parish or union, the rate-payers contribute in some proportion to their assessable property and means, the reverse is the case here. The poorest rate-payers pay the highest rates in the metropolis."

There are other subjects of great interest investigated statistically in this volume; such as, the causes of mortality at different periods of life, and the difference of mortality in different parts of London. But our further notices must be brief.

"One of the most interesting applications of these Tables" [alluding to the former subject], says Mr. Farr, "is to the determination of the expectation of life among persons destined to die of different diseases. The insurance offices (except one) are in the habit of refusing to insure the lives of persons having hereditary or accidental tendencies to consumption; but the lives of consumptive persons, though shorter, are regulated by laws as constant as those which are observed of persons dying of other diseases; and, admitting that the applicant will ultimately die of consumption (but is not laboring under the disease), he need not be deprived of the advantages of assurance, for his chance of living can be determined, and the risk calculated. I will discuss this subject at a future time, when more facts have been collected; in the interim, the following example will show how Life Tables for those who are likely to die of the several diseases can be constructed:—

"Take the numbers out of the preceding table who die of consumption at the different periods of life; subtract the numbers successively from the total deaths by consumption, and what I have called a 'Decennial Life Table' will be formed for this class. The interpolation by the method of differences is easy.

Life Table, applicable to Males who die of Consumption.			Expectation of Life in the Metropolis.	
Age.	Living.	Dying.	of persons who die of Consumption.	of all Males.
0	8,297	1,199	35	35
10	7,098	554	30	44
20	6,544	1,438	23	36
30	5,106	1,498	17	29
40	3,608	1,611	13	22
50	1,997	1,321		
60	676	576		
70	100	100		

As regards the different mortality of different districts of a large city, this subject was first investigated by M. Villermé relative to Paris. In the metropolis of Great Britain, the general result may be thus stated:

"The mortality is sixty-six per cent. higher in the unhealthy than in the healthy sub-districts; the proportion of births is fifty-one per cent. higher in the unhealthy than in the healthy sub-districts."

ART. VIII.—*The Cyclopædia of Practical Medicine.* Edited by JOHN FORBES, M.D., F.R.S., ALEXANDER TWEEDIE, M.D., F.R.S., and JOHN CONOLLY, M.D. Revised, with Additions, by ROBLEY DUNGLISON, M.D. Philadelphia: Lea & Blanchard. Parts II., III., IV., V., and VI.

IN noticing the first part of this reprint, we expressed an opinion in a measure unfavorable. We pronounced the articles to be of very unequal merit; and while we had every disposition to do the fullest justice to the writings of such men as Forbes, Prichard, Hope, Tweedie, Conolly, and others, we conscientiously stated our conviction, that, taken as a whole, it fell far short of what the work ought to be. We should not recur to this subject, were it not that our publisher has been accused of dictating to us an opposition to the Cyclopædia on the ground of the interested motives of having in press the rival work of Copland's Dictionary of Practical Medicine. Now, it so happened that we by chance mentioned to our publisher, prior to the appearance of the last number, that we had written an unfavorable notice of the Cyclopædia; and such were his feelings on the subject, that, instead of having suggested it, he actually besought us not to give it an insertion. Our worthy publisher, by the way, who has had not a little to do with editors, never interferes with their duties.

This explanation we make on the exclusive ground of being due to our publisher. As regards ourselves, conscious of the rectitude of our motives, we shall always treat, editorially, such an imputation with the silence that it merits. The Cyclopædia of Practical Medicine (for which

we paid the round English price of $35), we have had in our possession for several years; and it was from an extensive examination of the work that we arrived at the conviction expressed in our last number. Although it is said to be a principle with editors never to admit an error, yet, in the present instance, we have asked the opinion of three medical gentlemen of this city, unsurpassed in the whole extent of our country in an acquaintance with medical literature, as to the merits of this work, intending, if they differed with us, to modify our opinion in the present notice. So far, however, from such being the case, their opinions coincided in putting the work lower in the scale of merit than we had done.

We have cast our eye over Parts I., II., III., IV., V., and VI., and we are pleased to say that we are generally gratified with the notes of the American editor. His extensive knowledge of medical science as it exists at the present day, enables him to add much that is valuable. We especially admire his numerous small additions thrown into the text. But, at the same time, this good practice is sadly tarnished, as has been already noticed by a brother-editor, by a continual reference to his own writings. After mentioning a principle recognized a thousand years ago, indeed the most familiar fact, as the use of the most ordinary therapeutic agent, unceasing reference is made to some one of his works. Now such reference is wholly unnecessary, unless his writings, in these particular instances, are characterized by originality.

But we regret to be obliged to add that we find other and more serious objections in the part assigned to the American editor. For example, take the article, *Climate*. Here, although the English writer sets out with the admission that *physical* climate "*affords matter of the greatest interest to the medical philosopher*," yet he confines himself exclusively to what he designates as *medical* climate. This entire absence of any exposition of the laws of physical climate was a great defect in the original work; but in the American editor it betrays a still greater remissness, as there is no other country in the world, in which the laws of climate, so far as regards the distribution of temperature, have been so fully developed as in the United States. Even upon the subject of *medical* climate as regards the United States, the American editor's notes are limited to two short paragraphs: and here again reference is made to the author's work on Hygiène of 1835, when the subject of our climate was literally yet in its swaddling-bands.

There is one subject more, which to pass over in silence would be almost criminal. We refer to the agency of the exhalations of putrid animal matter in the production of disease, which, it is assumed by the English writer, Dr. Darwell, are innocuous when diluted, to some extent, in the atmosphere. In this opinion, the American editor coincides, as appears by the following note:

"It has been supposed that putrid animal exhalations are a common source of fever—intermittent, remittent, and continued—yet it would not seem that disease of any kind is often produced from this cause. It may, indeed, be affirmed, as the writer has done elsewhere, from numerous observations (Dunglison's *Elements of Hygiène*, p. 108: Philad. 1835), that in the vicinity of the workshops of the 'knackers,'—whose occupation it is, in the large cities of Europe, to convert the dead horse to useful purposes, cats' and dogs' meat, bones for the distillation of hartshorn, &c.—although the atmosphere is intolerably fetid to the casual visiter, neither the workmen nor the families around are liable to malarious, or to any disorder, which can be fairly referred to that cause; that

in the year 1828, a committee was appointed in Paris, to inquire into the circumstances connected with the operations of the knackers; and every one examined by the committee agreed that they were most offensive and disgusting, but no one that they were unwholesome; nay, it was even inferred, that they were conducive to health, as all the men, women and children, concerned in the works, had unvarying health, were remarkably well in appearance, and strong in body, the workmen commonly attaining old age, and being generally free from the infirmities that accompany it; and when an epidemic fever was in full force, not one of the workmen in the establishment of Montfaucon was affected by it; that, as already remarked, the gut spinner, whose occupations prior to the discovery by M. Labarraque of the disinfecting power of the chlorinated preparations, were most offensive, owing to the putridity of the macerated intestines, enjoyed remarkable health; and lastly, that although the tainted air of the dissecting room is breathed month after month, and for many months, by hundreds of students in different parts of the globe, no epidemic fever or special disease is generated.

"All these affirmations have been since confirmed by a hygienist of distinction (Parent Duchâtelet, *Hygiène Publique*, Paris, 1836). In the first place, as regards the shops of the knackers, or *chantiers d'équarrissage*, the filth and stench of whose operations are stated to be horribly offensive, M. Parent describes the establishment of Montfauçon, to which allusion has been made, as immense, the number of horses taken to it, either dead or to be killed, being twelve or thirteen thousand annually. The men are described as enjoying the most flourishing health, the women as most fruitful, and the children as pictures of healthful energy. Of the health of the manufacturers, he speaks in equally strong terms; and he adds, that the workmen in the *chantiers* were remarkably exempt from disease during the prevalence of cholera in Paris. There were fewer fever patients admitted into the Hôpital Saint Louis, which is situate in the district of the *chantiers*, than into any other hospital of the metropolis.

"As respects the dissecting rooms, a wide field is afforded in Paris for testing whether they be unwholesome to the students and attendants, and to the inhabitants in the vicinity. M. Parent unhesitatingly expresses his conviction that there is no ground for the belief that the dissecting rooms are *foyers* of morbid emanations. In support of this opinion, he adduces numerous facts, and the decided opinions of Lallemand, Desault, Dobois, Dupuytren, Boyer, and many others; and as regards the effect of the dissecting room on the health of students and persons attached to and employed in them, his testimony is no less unequivocal. He states, and brings forward the testimony of Messrs. Andral, Lawrence, and others in confirmation, that there is no disease whatever to which they are liable from the cadaveric emanations; that gastro-enteritis, meningitis, and typhoid fevers are very frequent, according to M. Andral, among the students during their first year's residence in Paris; but these diseases depend so little upon the mere circumstance of dissecting and remaining in the dissecting rooms, that they are more common amongst those who have not begun to dissect. Desault was in the habit of saying that he firmly believed the air of the dissecting rooms had saved him from attacks of epidemic and other diseases, of which those hospital physicians and surgeons, who seldom or never dissected, appeared to be much more susceptible than he." (*American Medical Intelligencer*, for 1838, p. 162.)

Now all this is a notion so wild that it strikes at the very foundation of our sanitary principles. If it really is a fact that animal and vegetable remains when undergoing decomposition, are not productive of disease, then are all the great objects of our sanitary laws the merest displays of nonsense; but if improved cleanliness, drainage, ventilation, and other means, do diminish disease and mortality, the affirmative of which can be readily established, then is this theory of the innocuousness of putrid animal remains one deserving of the severest condemnation. We pro-

mise to show not only that it is an error, but one that carries with it, if acted upon, a thousand evils to life.

We had prepared for this number of the Journal a pretty extended notice of the "Supplementary Report on the Results of a Special Inquiry into the Practice of Interment in Towns, by Edwin Chadwick, Esq.," being a supplement to the admirable "Report on the Sanitary Condition of the Laboring Population of Great Britain," noticed at length in our March number. But as we shall have no room for the whole of the present notice of the Report of Interment in Towns, we have concluded to make use of such part as is applicable to the present subject, reserving the rest for our next number.

In this Report, Mr. Chadwick has demonstrated triumphantly the erroneous conclusion to which M. Parent Duchâtelet arrived in his extended investigations at Paris. But before bringing under notice the results of that extraordinary man, M. Duchâtelet, reference will be made to some previous investigations conducted in 1828.

In Paris, in 1828, a committee was appointed for the purpose of ascertaining the effects, if any, exercised upon the human frame by the knacker's operations, where the disgusting process of making music strings from the intestines of animals is pursued; and all the witnesses brought before the committee concurred in the opinion, that, notwithstanding horribly offensive and disgusting, they were not only not unwholsome, but actually conducive to the promotion of health. We were told then, as subsequently, in the inquiry instituted by Duchâtelet, that the men had "*santé la plus florissante*," many of the women, "*santé brillante*" and "*fecondité remarquable*," and even the infants, who were sometimes cradled "*dans l'interieur d'une carcasse, comme dans un berceau*," we are told had "*force et mine admirables!*" Not satisfied with this glowing description of the healthfulness of breathing an atmosphere laden with the most putrid animal moleculæ, the men as enjoying the most flourishing health, the women as remarkably fruitful, and the children as pictures of healthful energy, we are further apprised that they secure an exemption from epidemics, as occurred during the prevalence of the cholera in Paris. The establishment of Montfauçon, designated *chantiers d'équarrissage*, where the number of horses taken annually, either dead or to be killed, amounts to twelve or thirteen thousand, is here referred to by Duchâtelet. But the number of dogs and cats flayed, in this disgusting, but very necessary, establishment, is still much greater, as they are brought not only from Paris but the surrounding country.*

The question whether dissecting rooms are ever the *foyers* of morbid emanations, is also a subject which has engaged much attention; and M. Duchâtelet, after much investigation, for which Paris offers a wide field, unhesitatingly declared his conviction in the negative.

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* One of the most abominable evils of these "chantiers," at least so it is considered, is the secret selling of the flesh of the dead horses as food to the inhabitants of Paris, notwithstanding the vigilance of the police. But then the abominableness is all in the mere idea; for it is eaten from choice by many of the men employed in the great slaughter-house at Montfauçon; in Denmark and Sweden, its public sale is authorized; and we are told by Baron Larrey, in his great work on Military Surgery, that, in the Russian and Egyptian campaigns, the wounded of the French army were fed for weeks, and even months, upon horse-flesh, without the least injurious consequences. Many other instances might be adduced.

There yet remains a still more uninviting subject, in the state of the "*fosses d'aisance*" in Paris. Boastfully self-styled "the centre and mart of civilisation and refinement," this condition of things, which may find sufficient explanation in the remark that, in Paris, dwellings are not provided with water-closets on the English and American plan, is one of the greatest reproaches to the metropolis. The more fluid part of this excrementitious matter, as well as all other liquid refuse, of course permeates the soil, and necessarily contaminates the springs from which the wells are fed; but the good people of Paris never troubled themselves to know, whither it went, or what was its ultimate destination! The periodical cleansing of these "fosses," is a horribly offensive operation; and the scavengers employed in this disgusting duty, are occasionally liable to a sudden attack of asphyxia, on account of certain gases evolved from infected sewers. But as regards the influence that the sewers have on the health of the workmen employed in their repair, Duchâtelet is decided in the opinion that their lives are not shortened by this apparently most unhealthy occupation. The health of these people, he says, is "*parfaite, et fort rarement derangé.*"

It was to such investigations, as remarked previously, that Duchâtelet devoted years of his life. There was not a considerable sewer in Paris, that he had not traversed, and he was not unfrequently found assisting the workmen. We are told by his biographer that he never exhibited the repugnance which these places naturally excite; and he adds—*je dirois presque qu'il les aimait—I had almost said that he loved them!* An anecdote is related of him that, burthened with a court dress, in the midst of a fête at the Hôtel de Ville, he whispered to a friend, that he would a hundred times rather go into a sewer than into such a company! Indeed, it was in sewers that he won immortality; and such is the contagion of a noble example, that we feel infected ourselves with a portion of his enthusiasm, ready to tuck up our sleeves and breeches to descend into the sewers, animated with the true hygiènic spirit.

We have thus been at pains to present the strongest evidence in favor of the opinion that putrid animal exhalations are not detrimental to human life; but, at the same time, we are compelled to say that we doubt the truth of the conclusion in its fullest extent. All the preceding testimony as to the innocuousness of emanations from animal remains, rests, of course, upon negative evidence; and we will now show, chiefly from Mr. Chadwick's Report on Interments in Towns, that the facts in respect to such alleged innocuousness, are incompletely stated. Even among those who deny the deleterious qualities of animal emanations, the concession of its injurious tendency is perhaps always admitted. Thus Parent Duchâtelet, after strenuously condemning the unjustness of the complaints against the anatomical schools, admits their offensiveness, and recommends the following mode of wholly avoiding the risk of infection:

"Instead of retaining the 'debris' of dissection near the theatres of anatomy, it would certainly be better to remove them every day; but as that is often impracticable, there ought, on a good system of 'assainissement,' to be considered the mode of retaining them without incurring the risk of suffering from their infection."

Similar assertions, it has been seen, have been made relative to gravediggers, the workmen exposed to the putrid emanations arising from

cleansing sewers, to the emanations from the remains in slaughter-houses, to the *chantiers d' equarrissage* or receptacle for dead horses, the *depôts de vidange* or receptacle of night soil, etc. These facts, it is contended by Mr. Chadwick, have also been imperfectly observed.

Positive evidence of the propagation of acute disease from putrid emanations is adduced by Mr. C. "Whilst M. Parent Duchâtelet," he says, "was looking for immediate appearances of acute disease on the robust workmen living amidst the decomposing animal effluvia of the Montfauçon, I have the authority of Dr. Henry Bennett [who was house surgeon at St. Louis], for stating that he might have found that the influence of that effluvium was observable on the sick at half a mile distant." Thus a cause common to a whole class is often not evinced in particular individuals, while taking the whole class, it is visible in the general pallor and the reduced sum of vitality, or in the diminished mean duration of life, as compared with that of another class in like circumstances, save this single exposure. But the best evidence that can be brought in confutation of these fallacies, are the dreadful facts contained in our mortuary registers, which show, in proportion to the constancy and the intensity of the combined operation of these causes, not only a high ratio of deaths, but a marked reduction of the mean duration of human life. This point will be abundantly illustrated in reference to various parts of England. In Manchester and Liverpool, for example, the community divided into three classes will have a ratio of mortality corresponding to their exposure to the same combination of causes, which have been pronounced innocuous by Duchâtelet. Thus the highest class in these towns have, as will be shown, an average age at death three times as high as that of the lowest or operative class; while, compared with the lowest average of an agricultural county, the latter is found to be just as favorable as that of the class of gentry and professional men belonging to the locality of a town. It is, indeed, proved, on every hand, by the sanitary reports of all the countries of Europe, that a diminution of the causes of deaths in cities is produced by better supplies of water, sewering, and cleansing, by widening of streets, by opening new thoroughfares, and by better ventilation; and these results, when taken in connection with the effects of other hygiènic improvements in the general habits of the population, are more especially apparent in a diminished infantile mortality, and in an increased average age of each adult class up to octogenarians. Now, are these results not fairly ascribable to the prevention of an accumulation of animal and vegetable remains?

It was these circumstances that first led us to doubt the truth of the deductions arrived at by Duchâtelet; and with the view of confuting them effectually, it has been necessary to treat of the subject more at large. As Mr. Chadwick has, however, presented an octavo of nearly 300 pages, containing evidence opposed to that of M. Duchâtelet, we scarcely aspire to do the subject simple justice.

The whole class of butchers, who are often instanced in proof of the innocuousness of the emanations from the remains in slaughter-houses, are not fair examples, as they are much in the open air and have very active exercise; but the men exclusively engaged in the slaughter-houses, in which there is a neglect of cleanliness and due ventilation, have, according to Mr. Chadwick, a cadaverous aspect.

Another doctrine still more extensively entertained is, the opinion that, notwithstanding injury may be produced by putrid emanations, they are

not productive of specific disease, such as typhus. Mr. C. adduces, however, on the opposite side of the question, some facts that seem to be incontrovertible. That instant death sometimes occurs to grave-diggers from the accidental inhalation of the concentrated miasm which escapes from coffins previously inhumed, is undeniable. In other instances, exposure to such miasma produces what are designated "low fevers," which terminate more slowly in death. It not unfrequently happens that leaden coffins in the vaults of cemeteries, unless they are watched and "tapped" to allow the mephitic vapor to escape, burst with a loud report; and such instances, in cases of rapid decomposition, even occur in private houses before the entombment.

A remarkable case of the propagation of disease from putrid emanations, which was stated to be a case of fever communicated after death, is given by Dr. Copland, in his evidence before the Committee of the House of Commons. A distinguished English gentleman, on going up the steps of a chapel, felt a rush of foul air issuing from the grated openings on each side of the steps. He was at once seized with a sensation of sinking, with nausea and great prostration of strength. A very malignant form of fever followed, and he died eight days afterwards. His wife took the same disease and died also in eight days, the symptoms being the same in both cases. Now, had this individual gone into a crowded hospital, would not this fever, had other circumstances contributed to the same end, have become contagious? Among the medical evidence adduced by Mr. Chadwick, much of it is of the following tenor: "Some years since a vault was opened in the church-yard (Stepney), and shortly after one of the coffins contained therein burst with so loud a report that hundreds flocked to the place to ascertain the cause. So intense was the poisonous nature of the effluvia arising therefrom, that a great number were attacked with sudden sickness and fainting, many of whom were a considerable period before they recovered their health."

The evidence of Dr. Southwood Smith, physician to the London Fever Hospital, on the effects of putrid emanations, is so much to the point that an abstract of it cannot but be acceptable to the reader:

"1. That the introduction of dead animal matter under certain conditions into the living body is capable of producing disease, and even death, is universally known and admitted. This morbific animal matter may be the product either of secretion during life or of decomposition after death. Familiar instances of morbific animal matter, the result of secretion during life, are the poisons of small-pox and cow-pox, and the vitiated fluids formed in certain acute diseases, such as acute inflammations, and particularly of the membranes that line the chest and abdomen. On the examination of the body a short time after death from such inflammations, the fluids are found so extremely acrid, that even when the skin is entirely sound, they make the hands of the examiner smart; and if there should happen to be the slightest scratch on the finger, or the minutest point not covered by cuticle, violent inflammation is often produced, ending, sometimes within forty-eight hours, in death. It is remarkable, and it is a proof that in these cases the poison absorbed is not putrid matter, that the most dangerous period for the examination of the bodies of persons who die of such diseases is from four to five hours after the fatal event, and while the body is yet warm.

"That the direct introduction into the system of decomposing and putrescent animal matter is capable of producing fevers and inflammations, the intensity and malignity of which may be varied at will, according to the putrescency of the matter and the quantity of it that is introduced, is proved by numerous

experiments on animals; while the instances in which human beings are seized with severe and fatal affections from the application of the fluids of a dead animal body to a wounded, punctured, or abraded surface, sometimes when the aperture is so minute as to be invisible without the aid of a lens, are of daily occurrence. Though this fact is now well known, and is among the few that are disputed by no one, it may be worth while to cite a few examples of it, as specimens of the manner in which the poison of animal matter, when absorbed in this way, acts; a volume might be filled with similar instances."

Passing over these remarkable instances, which occurred under the observation of Sir Astley Cooper, Drs. Babington and Travers, and others, Dr. S. proceeds to show, by evidence that is incontrovertible, that this morbific matter, diffused through the atmosphere in minute particles, is no less capable of penetrating the system through the thin and delicate walls of the air vesicles of the lungs in the act of respiration, than when it is directly introduced into the blood-vessels by a wound. The great and almost incredible extent of the absorbing surface of the lungs, and the facility with which such substances are imbibed and carried at once into the circulation, are strongly illustrated by the most appropriate examples. An exposition of the law of the production and propagation of disease through the medium of an infected atmosphere, is equally afforded, on a small scale, in the sick chamber, the dissecting-room, the church and the church-yard; and, on a large scale, by the rapid advance of an epidemic, as of cholera, influenza, or small-pox, over a nation or a continent.

That the exhalations arising from marshes, bogs, and other undrained localities, constitute a poison chiefly of a vegetable nature, resulting in fevers mostly of an intermittent and remittent type, is equally admitted with the preceding facts; but even this is denied by Professor Dunglison, the disciple of Duchâtelet, in his "Elements of Hygiène," or in other words he asserts that there is no positive proof of the affirmative.

"It is equally well known," says Dr. Southwood Smith, "that, when the air is infected by particles of decomposing vegetable and animal matter, fevers are produced of various types and different degrees of intensity; that the exhalations arising from marshes, bogs, and other uncultivated and undrained places, constitute a poison chiefly of a vegetable nature, which produces principally fevers of an intermittent or remittent type; and that exhalations accumulated in close, ill-ventilated, and crowded apartments in the confined situations of densely-populated cities, where little attention is paid to the removal of putrefying and excrementitious matters, constitute a poison chiefly of an animal nature, which produces continued fever of the typhoid character. There are situations in which these putrefying matters, aided by heat and other peculiarities of climate, generate a poison so intense and deadly, that a single inspiration of the air in which they are diffused is capable of producing almost instantaneous death; and there are other situations in which a less highly concentrated poison accumulates, the inspiration of which for a few minutes produces a fever capable of destroying life in from two to twelve hours. In dirty and neglected ships, in damp, crowded, and filthy jails, in the crowded wards of ill-ventilated hospitals filled with persons laboring under malignant surgical diseases or bad forms of fever, an atmosphere is generated which cannot be breathed long, even by the most healthy and robust, without producing highly dangerous fever."

The evidence of Dr. Lyon Playfair is also adduced by Mr. Chadwick, part of which is here presented:

"There are two kinds of changes," he says, "which animal and vegetable

matters undergo, when exposed to certain influences. These are known by the terms of 'decay' and 'putrefaction. Decay, properly so called, is a union of the elements of organic matter with the oxygen of the air; while putrefaction, although generally commencing with decay, is a change or transformation of the elements of the organic body itself, without any necessary union with the oxygen of the air. When decay proceeds in a body without putrefaction, offensive smells are not generated; but if the air in contact with the decaying matter be in any way deficient, the decay passes into putrefaction, and putrid smells arise. Putrid smells are rarely if ever evolved from substances destitute of the element nitrogen.

"Both decaying and putrefying matters are capable of communicating their own state of putrefaction or of decay to any organic matter with which they may come in contact. To take the simplest case, a piece of decayed wood, a decaying orange, or a piece of tainted flesh is capable of causing similar decay or putrefaction in another piece of wood, orange, or flesh. In a similar manner the decaying gases evolved from sewers occasion the putrescence of meat or of vegetables hung in the vicinity of the place from which they escape. But this communication of putrefaction is not confined to dead matter. When tainted meat or putrescent blood-puddings are taken as food, their state of putrefaction is frequently communicated to the bodies of the persons who have used them as food. A disease analogous to rot ensues, and generally terminates fatally. Happily this disease is little known among us, but it is of very frequent occurrence in Germany."

It is further shown by Dr. Southwood Smith that the evidence that exhalations arise from the dead, productive of disease and death, is just as indubitable as the preceding facts.

The exhalations arising from dead bodies in the dissecting room, and from those interred in the vaults of churches and in church-yards, are generally so much diluted by the admixture of atmospheric air, that the health is not commonly affected in a striking manner. This is effected in the dissecting room by ventilation; and notwithstanding this precaution, diarrhœa and general derangement of the digestive organs are very apt to supervene, requiring a temporary residence in the pure air of the country. The same remark applies to the persons licensed to slaughter horses, called knackers, who, notwithstanding their health is maintained seemingly unimpaired for a greater or less time, soon begin to exhibit disordered functions of the nutritive organs, a certain degree of emaciation, and a cadaverous aspect.

The following are the general conclusions deduced by Mr. Chadwick from the preceding facts, which, though very imperfectly presented, are yet more in detail than the limits of this paper would require, were it not that the innocuousness of animal and vegetable exhalations has become a favorite doctrine since the investigations of Duchatelet.

"The injurious effect of the exhalations from the decomposition in question upon the health and life of man is proved by a sufficient number of trustworthy facts;

"That this injurious influence is by no means constant, and depends on varying and not yet sufficiently explained circumstances;

"That this injurious influence is manifest in proportion to the degree of concentration of putrid emanations, especially in confined spaces; and in such cases of concentration the injurious influence is manifest in the production of asphyxia and the sudden and entire extinction of life;

"That, in a state less concentrated, putrid emanations produce various effects on the nerves of less importance, as fainting, nausea, head-ache, languor;

"These emanations, however, if their effect is often repeated, or if the ema-

nations be long applied, produce nervous and putrid fevers; or impart to fevers, which have arisen from other causes, a typhoid or putrid character;

"Apparently they furnish the principal cause of the most developed form of typhus, that is to say, the plague (*Der Bubonenpest*). Besides the products of decomposition, the contagious material may also be active in the emanations arising from dead bodies."

These conclusions, which are firmly established by the most preponderant medical testimony, derive additional importance from their close coincidence with those deduced on the continent by Dr. V. A. Riecke, of Stuttgart. To this Report—"On the Influence of Putrefactive Emanations on the Health of Man," etc.—a prize was awarded by an eminent medical association.

Dr. Riecke, contrary to the opinion of Duchatelet, comes to the conclusion that offensive smells are true warnings of sanitary evils to the population. "Many animals," observes Rudolphi, "are entirely dependent on their sense of smell for finding out food that is not injurious; when their smell is injured, they are easily deceived, and have often fallen a sacrifice to the consequent mistakes." Even in the human frame, the organ of smell may be regarded as the truest sentinel. "Amongst all known smells," says Dr. Riecke, "there is perhaps no one which is so universally, and to such a degree revolting to man, as the smell of animal decomposition. The roughest savage, as well as the most civilized European, fly with equal disgust from a place where the air is infected by it. If an instinct ever can be traced in man, certainly it is in the present case: and is instinct a superfluous monitor exactly in this one case? Can instinct mislead just in this one circumstance? Can it ever be, that the air which fills us with the greatest disgust, is the finest elixir of life, as Desmoulins had the boldness to maintain in one of his official reports?"

It is thus seen that, however much we disagree with M. Parent Duchâtelet in his deductions relative to the effects of putrid animal remains, we award him what he richly deserves, viz., the character of a hygienist of the first distinction. He was decidedly a man of genius; and when such a man gives rein to his imagination, as in the present inquiry, the error that he commits is one that no ordinary man can approach in its wild extravagance. During the last few years, we have been in the habit, when in conversation with a professional brother, of asking the question—"Are you a convert to the modern opinion, that neither animal nor vegetable matter in a state of putrefaction ever is the cause of disease?" The answer is invariably, "No." We have yet to meet with the first medical man, whose common sense observation does not at once pronounce it a ludicrous dogma.

This subject will be more fully illustrated in our next number, when the Report on Interments in Towns will be considered in detail. It is, indeed, doubtful whether any greater physical evils are entailed upon any district than by the conjoined agency of bad drainage and crowded churchyards. As these gases, in the open rural districts, soon intermix with the circumambient air, they become so much diluted that much of their potency is destroyed; but in compact towns, they exert their most deleterious agency; and here they escape observation, besides, in the multitude of villanous smells.

Many of these points have been illustrated in the preceding article, on

the Fifth Annual Report of the Registrar-General of Births, Deaths, and Marriages in England. This is especially the case relative to the contagiousness of puerperal fever, and its origin from an animal poison, communicated by nurses and physicians who have been attending on such diseases as gangrene, typhoid erysipelas, and malignant typhus.

But we cannot allow to pass without further notice the extreme views entertained by Dr. Dunglison relative to vegetable malaria. "By some writers on malaria," he says, "it has been ascribed to vegetable putrefaction; by others to aqueous or to animal putrefaction, or to different combinations of these; but we shall attempt to show, that there is no positive—no historical evidence—that any one, or any combination, of these varieties of putrefaction does ever occasion, even in marshy districts where the poison exists in greatest abundance, malarious or miasmatic diseases."

That malaria has its source in organic remains is an opinion, contrary to the one just adduced, abundantly sustained by the statistics of the United States Army, extending over our whole domain, and comprising a period of twenty years. The observation, that there is a connection between organic remains and what are designated as malarial diseases, finds undeniable proof within the most circumscribed limits. We refer to the well known fact that the resident of our southern low-lands is peculiarly subject to malarial diseases along the margins of streams, lakes, and marshes, while he is exempt in the adjacent sandy pine woods. The Seminole Indian in Florida always adopted the course of living, in the winter, on the fertile lakes and streams, and retiring, on the approach of hot weather, to the barren sand of the pine woods. Evidence of this kind we have at hand in the greatest abundance, as detailed in our work on the "Climate of the United States and its Endemic Influences." Even in the malarious region of the great lakes, those posts which have a dry and sandy soil, as Forts Brady and Mackinac, are almost exempt from these diseases; and so upon the Atlantic plain, which partakes of the same malarious character, a similar exemption is found at Forts Monroe and Moultrie, each situated on a sandy tongue of sea coast.

Every captain on our great lakes knows that, if he anchors his vessel on a marshy part of the coast, during the hot season, his men will be affected with intermittent or remittent fever; and equally well does he know, that as soon as he sails from such anchorage toward the centre of the lake, or to some other port which has a bold shore, and which is consequently free from decaying vegetables, will new cases immediately cease to appear.

These observations, we opine, have somewhat the character of "*positive*" or "*historical evidence*" in favor of the vegetable origin of malaria. But this most obvious deduction, which is now regarded by all the world as a truism, can be further confirmed by showing how malarial diseases are influenced by season and latitude.

Taking the averages of the United States, as exhibited in the following table, which shows the relative influence of the seasons upon intermitting and remitting fever, diarrhœa, and dysentery, the influence of temperature, which is the great agent, in connection with moisture, in the production of vegetable putrefaction, is strikingly manifested.

The following are the ratios of cases treated per 1000 of mean strength:

	1st quarter of year.	2d quarter.	3d quarter.	4th quarter.	Annual result.
Intermitting Fever,.....	45	75	156	93	369
Remitting Fever,.....	7	15	58	22	102
Diarrhœa and Dysentery,.....	54	107	166	75	402

It is here seen that among the ratios of disease in each quarter which have a very marked equality, that of the third quarter, as regards intermitting fever, diarrhœa, and dysentery, is more than three-fold higher than that of the first, and more than twice as high as that of the fourth quarter; and this difference is still more marked, as respects remitting fever. As these malarious diseases thus augment and decrease in ratio with the increasing and decreasing temperature of the seasons, there would seem to be here some *positive* and *historical evidence*, that malaria, in view of this remarkable agency of heat, has some connection with vegetable decomposition.

This modification of the law of the prevalence of malarial disease produced by the agency of the different temperature of the seasons, we will now show obtains equally as regards the increasing and decreasing temperature consequent on decreasing and increasing latitude.

Regions of the United States.	Ratio of cases treated annually per 1000 of mean strength.		
	Intermittent Fever.	Remittent Fever.	Diarrhœa and Dysentery.
Posts on the coast of New England, .	36	26	170
" " northern chain of Lakes, .	193	33	253
Northern Posts remote from the ocean and inland seas, ...	151	24	305
Coast from Delaware Bay to Savannah, .	370	181	455
South-western stations, ...	747	180	597
Posts on the lower Mississippi, . .	385	196	456
Posts in the peninsula of East Florida, .	520	102	495
Average,	368	101	405

We thus see an equally marked influence of temperature, the ratio augmenting with the decrease of latitude, and *vice versâ*, upon the development of malarial diseases. This, however, is a general law, which is modified by local circumstances, as was seen in the cases already adduced relative to adjacent localities in our southern regions, the one being characterized by sterility and the other by an abundance of organic remains. The agency of these local causes, dependent on the nature of soil and of geological formation, we find strongly manifested on the same parallels in comparing the region of the great lakes with that of the Atlantic coast. At our military posts in the former region, the ratio of intermittent fever is five or six-fold higher than at the posts along the coast of New England; and this same contrast between Canada, on the one hand, and Nova Scotia and New Brunswick on the other, is shown by the British army statistics. Local causes here evidently make all the difference, the one soil having more organic remains than the other, and being, at the same time, more favorable to marshy formations. New England, for instance, has a primitive geological formation with a sandy and sterile soil, which is consequently comparatively destitute of organic

remains, while the region of the great lakes, on the other hand, has not only a geological structure of secondary origin, but mostly a deep, rich, and humid alluvial superstratum. In the former region, as the soil is of a coarse and gravelly nature, it is percolated by the rain which thus flows off, favored still more by the undulating surface; but if, on the other hand, the geological structure consists of tertiary and cretaceous secondary deposits, with a deep, rich, clayey, and absorbent soil, more especially if low and flat with an argillaceous substratum impervious to water, it will yield to evaporation nearly all the rain which falls upon it, thus carrying into the atmosphere a portion of decayed animal and vegetable matter (the decomposition of which its moisture promoted), or perhaps some new resulting compound.

These laws we have traced throughout every region of the United States, as may be seen in our work on the climate of the United States, before cited.

Were any additional testimony requisite to prove the deleterious agency of organic matter undergoing decomposition, it could be easily found in the preceding article on the Fifth Annual Report of the Registrar-General of Births, Deaths, and Marriages in England. As an evidence of the atmospheric impurities due to this cause, we may quote the following remark on the effects of drainage on human life, from the *Lond. Med. Times:*

"The Rev. Professor Buckland, at a public meeting held in Oxford last week, said that, in the parish of St. Margaret, Leicester, containing 22,000 inhabitants, it appeared that one portion of it was effectually drained, some parts but partially so, and others not at all. In the latter, the average duration of life is thirteen years and a half, while in the same parish, where the drainage is only partial, the average is twenty-two years and a half, thereby showing the frightful effects of a bad atmosphere."

The existence of organic matter in the atmosphere, in proportion to the density of population, is no longer a disputed question; and, indeed, Liebig has obtained from such atmospheres, ammonia, which is a product of the putrefaction of animal matter. It is proved conclusively in the last Registration of England, that, other causes being equal, an increase of density in population always implies an increase of mortality; and it is happily remarked by the ingenious Mr. Farr, as is seen on a preceding page, in view of the difficulties that attend sanatory inquiries, that "the zealous Parent Duchâtelet's methods would not have detected great differences in the mortality; and he might almost as well have attempted to guess by his sensations the mean temperature of Paris, as to pronounce an opinion on the duration of the people's lives employed in Montfauçon; yet his paper has been cited as decisive on the question of the influence of putrefying animal matter!!" The high mortality of towns, compared with rural districts, is beyond all doubt ascribable to the circumstance that, in the former condition, people live in an atmosphere polluted with decomposing matter of vegetable and animal origin.

ART. IX.—*A Treatise on Operative Surgery; comprising a Description of the various Processes of the Art, including all the new Operations; exhibiting the State of Surgical Science in its present advanced Condition—with eighty plates, containing* 486 *separate Illustrations.* By JOSEPH PANCOAST, M. D., Prof. of General, Descriptive, and Surgical Anatomy, in Jefferson College, Philadelphia; Lecturer on Clinical Surgery; one of the attending Surgeons at the Philadelphia Hospital, etc. Philadelphia: Carey & Hart, 1844, quarto, pp. 380.

THIS excellent work is constructed on the model of the French Surgical works by Velpeau & Malgaigne; and so far as the English language is concerned, we are proud, as an American, to say that of its kind, it has no superior.

The leading object of the writer of this ponderous tome has been to illustrate, by means of accurate drawings, the operations of Surgery, so as to render "the processes for their performance, intelligible to the student," and at the same time to produce a work "that shall represent, so far as its limits will allow, the operative surgery of the day."

In this portraiture of the actual state of surgical science, we will accompany our author at least part of the way. The whole subject is divided into several parts; I. Elementary and Minor Operations; II. General Operations, or those practised with reference to one or more particular Tissues; III. Special Operations, or those which are practised upon complex Organs in particular Regions of the Body; and IV. Plastic and Subcutaneous Operations.

Under the first head of *elementary and minor operations* are considered, the division of parts with the bistoury and scissors, division by ligature, phlebotomy, arteriotomy, cauterization, re-union by suture, setons, issues, moxa, acupuncturation, and the means of arresting hemorrhage before, during, and after operations.

These various subjects are all well described, both in language and by means of wood-cut illustrations. We have nothing to remark especially upon this portion of the work, save perhaps as regards one of the modes of arresting arterial hemorrhage after operations. "Occasionally," says Prof. P., "we find the large artery after amputation so ossified in its structure, as not to close without crushing under the loop. Under such circumstances I have succeeded satisfactorily by plugging the orifice with a piece of linen compress and tying the vessel over it; when the ligature becomes detached, it will bring away the plug." Now this is certainly a very rare occurrence, as the cellular coat of the artery is very seldom ossified; and even when it does occur, the mode here recommended of plugging the vessel we look upon as of doubtful propriety.

In concluding the chapter on Minor Surgery, the author refers the reader, as regards "the use of refrigerants, astringents, styptics, absorbents, and cauterizing substances for the arrestation of capillary bleeding, to the usual treatises on Surgery." Now, in our own humble opinion, we conceive that this is the very spot where such descriptions ought to have found a place, more especially as the chapter is devoted to minor surgery, and as the author professes to present surgery as it is at the present day. Besides, no one could do it better than he.

With Part II., devoted to general operations, comprehending those which are practised upon the veins, those for ligature of the trunks of the

arteries, those for diseases of the bones and joints, and amputation of the limbs, we are equally well pleased.

Speaking of aneurismal needles, Prof. P. gives deserved credit to Prof. Gibson of the University of Pennsylvania for the invention of an admirable instrument for securing deep-seated vessels, on the plan of Bellocq's tube. Our author prefers that of Graefe, which is curved on the side, and that of Physick, consisting of a blunt-pointed needle, held in the artery forceps. With us, in the city of New York, the needle of Sir Philip Crampton is very generally used.

As a specimen of Prof. P.'s mode of describing operations, we will here introduce his account of the ligature of the Arteria Innominata:

"*Surgical Anatomy.*—The arteria innominata is, after the aorta and pulmonary arteries, the largest arterial trunk in the body. It is given off from the top of the arch of the aorta to the left of the middle part of the upper bone of the sternum, and a little more than half an inch from its upper margin. It passes from this place obliquely upwards and outwards, to a point immediately behind the sterno-clavicular articulation of the right side, at the upper margin of which it divides into the right primitive carotid and right subclavian. In its route it traverses the superior thoracic fascia of Cooper (which is an important means of protection to the chest), about four lines below its place of bifurcation. The trunk of this vessel is usually found from an inch and a quarter to an inch and a half long. Its diameter, in a well developed adult, is about half an inch. The place of its division is deep behind the sternum, from half an inch to three inches from the inner face of the top of that bone. In front, the vessel is separated from the sterno-hyoid and thyroid muscles by some loose cellular tissue, in which are lodged many of the inferior thyroid veins that discharge into the left subclavian. Between these and the bone lies one part of great importance, the transverse vein (left vena innominata), which passes over from the left to the right side, but so near the root of the vessel, however, as to be out of the way of the operation.

"When the head is thrown forcibly backwards, and to the left side, the arteria innominata is drawn upwards, so that its point of bifurcation, as seen in Plate 8, fig. 1, is considerably above the sterno-clavicular articulation. *Posteriorly*, it crosses obliquely the root of the trachea. On its *inner* face is the left carotid, and in this angle of divergence between the two vessels, projects the trachea. *Externally*, it rests for the greater part of its course, upon the pleura covering the upper surface of the right lung. The right subclavian and right jugular vein, and the common trunk they form, as well as the pneumogastric nerve, are placed so much on the outer side of the artery at the point where it is tied, as not to be endangered in the operation, unless the surgeon errs by hunting too far outwards for the vessel, which, it is to be recollected, is lodged between the right margin of the trachea and the right sterno-clavicular articulation, immediately behind the sternal origin of the sterno-cleido-mastoid.

"*Anomalies.*—This great trunk is rarely seen to deviate from the usual description. It occasionally, however, varies in regard to its direction and length, and has been found altogether wanting. I have in my cabinet several specimens of transposition of the great vessels coming off from the arch of the aorta. In one, the right subclavian originates on the left side, and crosses to the right between the trachea and œsophagus. In another having the same origin, it passes behind both these tubes. In a third, the two carotids spring from a common trunk, etc.

"*Anastomosis.*—Spontaneous aneurism of the arteria innominata itself, has many times been met with, and instances have been noted by two observers,* where it was found that one or both of the branches that arise from it, oblite-

* Pelletan and Dr. Wm. Darrach.

rated after death. The anastomosing branches that may restore under such circumstances the circulation to the right side of the head and neck, are the branches of the left vertebral and carotid; and the thyroid, cervical, intercostal and internal mammary of the two sides, anastomose together so as to be able to return the blood to the right arm by the way of the supra and sub-scapular, external thoracic and circumflex vessels. The fact of its accidental obliteration serves in a measure to show the *possibility* of a successful result in the case of its being tied. The honor of having first peformed this most serious operation, is due to Professor Mott, of the University of the City of New York.

"*Operation. Process of Mott.* (Plate 8, fig. 1.)—The patient is placed in the recumbent position, with the neck slightly flexed and supported with a pillow, and the face turned to the opposite side in order to relax the sterno-cleido-mastoid muscle. The surgeon, standing upon the right of the patient, makes a transverse incision of three inches in length, commencing at the median line of the neck, and extended outwards parallel with, but half an inch above, the upper border of the clavicle. Another incision of the same length is made along the internal border of the sterno-cleido-mastoid, terminating at the commencement of the first. The platysma muscle and the superficial fascia are next carefully opened so as to expose the sternal portion of the sterno-cleido-mastoid, which is to be divided on the grooved director previously passed behind it. The inner two-thirds of the clavicular origin of the muscle is to be cut in a similar manner; the muscle is then to be reversed upwards and outwards as seen in Plate 8. The sterno-hyoid and thyroid muscles are now to be divided, after having been cautiously raised on the director. The surgeon then opens with the finger or the director the cellular tissue in the direction of the vessel, carefully avoiding the right internal jugular vein, which is found a quarter of an inch to its outer side, and the inferior thyroid veins, which usually cover it in front, and are drawn off laterally. The finger falls first upon the primitive carotid near its root. The surgeon traces this vessel downward, and cautiously tears the cellular tissue till the innominata is exposed. The vessel in question being now discovered, it is to be separated on its outer or right margin from the vena innominata of the same side with the end of the director, and then pressing off lightly from it the vein and the recurrent laryngeal nerve, the ligature is carried with a curved aneurismal needle from without inwards around the vessel.

"In operations upon the subject, I have found it more convenient to make the longitudinal incision first, as the skin becomes relaxed after the transverse one is made. Before attempting to pass the ligature, I find it also best to raise with the forceps and divide on the front of the vessel a dense cellular layer, which is an extension downwards of the deep-seated fascia of the neck. Professor Mott secured the vessel with the ordinary silk ligature.

"Several other processes have been devised for the ligature of this artery. Graefe, who followed Dr. Mott in the operation, made only a longitudinal incision, along the inner side of the sterno-cleido-mastoid, and partly with his finger, and partly with the handle of the scalpel, separated the parts down to the carotid near its place of origin. Following this vessel, he reached the innominata, which he detached behind the upper part of the sternum from its sheath, so as to get his finger around it. M. Manec directs only the transverse incision to be made, and through that proceeds to isolate the vessel.

"*Process of King.*—This, as last modified, consists of an oblique incision, carried inwards and upwards from the right sterno-clavicular articulation over the supra-sternal fossa, to the left sterno-cleido-mastoid muscle, the surgeon standing on the left side. The artery is to be sought for between the trachea and the sterno-hyoid muscles, and surrounded with a ligature passed from without inwards. This process, though brilliant in its execution on the dead body, must be attended with great difficulty in its application to the living, from the contraction of muscles and the effusion of blood in so narrow a wound. That of Mott is to be preferred to all, as the most judicious in its plan, and likely to be most successful, as leaving less to hazard in the delicate manipulations required. In each of the several instances in which the operation has as yet been

performed, the patient sunk from hemorrhage between the periods of nineteen and sixty days; and it is yet a question whether the great size and depth of the artery, its proximity to the heart, and probable pathological condition in aneurisms of the carotid and subclavian, do not present such difficulties in regard to the formation of a clot on the side next the heart by the time the ligature separates, as to offer insurmountable obstacles to its successful performance. In Manec's experiments upon the inferior animals, in which the effusion of coagulable lymph takes place with greater facility than in man, the safe obliteration of the vessel, even when previously healthy, occurred but twice in four times. Still, circumstances may arise to justify its performance, especially when it is considered that the only alternatives presented are little to be relied on, viz., the securing of the carotid or subclavian on the distal side of the tumor after the methods of Brasdor and Wardrop, or the uncertain process of Valsalva."

This operation has been since performed, or at least attempted, more frequently than the profession generally are aware of, as many of the cases have never been published to the world; as, for instance, that of Porter in Dublin, and by Dr. Hoffman of this city.

As regards the tying of the common carotid, Dr. P. remarks:

"The ligature of this vessel is rarely practised now, except for the cure of aneurism of the trunk or some of its branches, or in extensive wounds of the face and neck. In former times, it was much employed as a preparatory measure in resection of the jaws, removal of tumors from the face, and ablation of the parotid gland. But it has been found by experience, that secondary hemorrhage is apt to follow from the return of blood into the divided vessels, and that it is better to secure them as they spring, as the loss of blood may be temporarily checked so as to give time to find the divided branch, by pressure of the lower part of the carotid against the spine, which is sufficiently superficial for that purpose. Both carotids have been obstructed by ligature in the same individual. Professor Mott tied them nearly simultaneously in a case of desperate necessity. The patient died in the course of twenty-four hours, and it is questionable whether the human brain could sustain the sudden deprivation of two such columns of blood as those sent up by the carotids. Where some interval of time has elapsed between the operations for ligature of the two vessels, the result has been more successful. The artery may be tied at two points, either above or below the omo-hyoid muscle."

The "*nearly simultaneous*" tying of both carotids in the same individual by Dr. Mott, consisted of a single operation, without an interval perhaps of five minutes; and the case proved fatal in a few hours.

The following account of Dr. Mott's case, given by an eye-witness, taken from the New York Journal of Medicine and Surgery, Vol. III., p. 162, may be relied upon as correct:

"In the memorable case in which Dr. Mott took up both vessels at one sitting, the functions of the brain were instantly and profoundly affected. We have a lively recollection of the case; the application of the ligature to the right carotid produced no sensible effect; but on tightening the ligature on the second vessel, the patient, after a sudden convulsive movement, swooned away. The ligature was loosened, and he revived; it was tightened a second time, and again the same symptoms ensued, and continued until the ligature was loosened a second time. After a few moments' delay, it was tightened for the third time, and again the patient swooned; but after a few minutes, he revived sufficient-

ly to open his eyes; the ligature was now permanently secured,—the patient never rallied. He continued for twelve or fourteen hours in a condition of profound cerebral oppression, and then expired."

Upon ligature of the Abdominal Aorta, Dr. P. remarks as follows:

"Since the attention of surgeons has been called to this subject, more than forty cases have been reported of contraction or accidental obliteration of the aorta from the pressure of tumors or other causes, all of which tend to prove the possibility, as before observed, of a return of the circulation to the lower extremities after the obliteration of the lumbar portion of this vessel. Upon these facts has been founded the hope of success, in cases admitting of no other chances of relief, in cutting down upon and tying this important trunk, rather than upon the results of experiments on dogs, whose tenacity of life surpasses that of man. In the three cases in which it has been tied on the living subject, the issue has not justified the boldness of the proceeding, and it is very questionable whether any case could occur that would fully sanction the step. Apart from the great size of the vessel, we run the risk of finding it diseased in aneurism of the primitive iliac, and of many of the collateral vessels being obliterated by the tumor. If there be wound of the iliac arteries of much size, time would not be afforded for the operation; and if it be a puncture merely, the surgeon could not satisfy himself sufficiently well in regard to the origin of the hemorrhage to justify so desperate a proceeding. Gangrene, from want of a return of the circulation to the lower extremities, peritonitis, and hemorrhage, are the accidents to be apprehended in ligature of the aorta. The first operation of this kind was done by Sir A. Cooper, in 1817, and his patient died at the end of forty hours. Mr. James, of Exeter, operated in 1829, and the patient sunk three hours after. Mr. Murray performed a similar operation at the Cape of Good Hope in 1834, and his patient died at the end of twenty-three hours."

It may be added that the Journals, within a year, have had an account of this operation, done in South America, in Peru or Brazil.

In this same Part, under the head of "*Operations for Diseases of the Bones and Joints*," the subject of Hydarthrosis or articular dropsy, is considered, to which our attention just now is directed, from the circumstance that there is found, among our original communications of this Number, an interesting paper on the same, or rather a kindred, disease. Prof. P. thus describes the operation:

"All therapeutic measures having failed to cause a removal of the dropsical accumulation, we may discharge it either by incision with a bistoury, or puncture with a trocar. The great object in the operation is to avoid the entry of air, which might provoke irritation in the cavity of the joint, and give rise either to suppurative inflammation of the serous membrane, or even ulceration of the articular surfaces. The operation is, therefore, not unattended with danger, and is only to be undertaken when the patient is not able, by the aid of a compressing bandage, to serve himself with the limb. The bistoury is to be preferred to the trocar, as the incision it makes is not more irritating than the puncture with the latter instrument, and allows better the discharge of the flaky pus sometimes mixed with the serum, or of a movable cartilage, the presence of which is sometimes discerned only after the fluid has in part escaped.

"Select the most depending portion of the tumor, and if possible, at the same time, the most prominent. If it be the knee, and seldom any other joint requires the operation, the inner portion is selected, as the limb can be so turned as to make it dependent. The skin being drawn to one side, in order to prevent any parallelism between the inner and outer portions of the wound, the bistoury is to be passed in perpendicularly to the surface, and the incision moderately enlarged as it is withdrawn. After the discharge of the fluid, a simple dressing is to be laid over the wound, and the limb, which is to be kept for a couple of weeks or

more perfectly at rest, covered with a compress wetted with Goulard's or some other resolvent lotion. The fluid is so soon reproduced, that Boyer directs at the end of the twenty-four hours to reopen the incision and discharge it anew. If the lips are merely slightly agglutinated he would separate them with a director, or with a bistoury if the union be more firm. If there is a probability of having to make several successive punctures, he directs to keep the passage open, by introducing through it a strip of linen or some charpie. But I have preferred in my own practice, to this constant presence of a foreign body in the cavity of the joint, an occasional oblique puncture under a valvular fold of the skin; resorting to gentle compression after each operation, in order to overcome the tendency to a re-accumulation of the fluid. Flocculent portions of pus or decayed membranes may be occasionally washed out with advantage by emollient injections, after which an injection of the same sort allowed to remain after the manner of Recamier, it is said has been attended with advantage.

"M. Malgaigne prefers the use of the trocar, and, contrary to common experience, asserts that the puncture of the articulations is an operation perfectly innocent. He has operated, he observes, six times in this manner for dropsy of the knee joint without the least inconvenience. He only regards it as insufficient of itself for a cure, requiring in addition the use of compression, counter-irritation, and the various other therapeutic means to effect radical relief. However, there is always great reason to fear that the paracentesis of a joint will be followed by anchylosis, by suppuration from its cavity, by destruction of the cartilages, or caries of the bones. Weak iodine injections, after a partial removal of the fluid by tapping, have been experimentally employed in this affection, by M. Bonnet, of Lyons."

We think we are right in saying that the practice of puncturing and injecting joints was resorted to in this country before its adoption in Europe. The late Dr. Hubbard, of New Haven, who had been for many years in the habit of doing both, deserves much more credit than Velpeau, Malgaigne, or Bonnet.

The method of forming, in anchylosis, an artificial joint, for which the world is indebted to the ingenuity of Dr. John Rhea Barton, of Philadelphia, has been thus far applied but to a single articulation—that of the hip-joint. Barton's process in case of anchylosis of the hip, is thus described by Dr. P.:

"The ingenious idea of remedying this deformity by the establishment of an artificial joint, was first practised by Dr. Barton in 1826. A similar operation was repeated four years subsequently by Dr. J. Kearney Rogers, of New York; the two constituting the only instances in which it has yet been attempted on the living subject. The patient of Dr. Barton was a young man twenty-one years of age, in whom the thigh was held immovably bent at a right angle with the pelvis, and the foot turned in rotation inwards. A crucial incision was made over the projecting portion of the trochanter major, the vertical division of which was seven inches in length, and the transverse five. The four laminæ thus formed were dissected and turned back, and the fascia freely opened. The muscular fibres were then detached from over the trochanter by turning the scalpel sideways, so as to allow the two index fingers to be passed freely round the neck of the femur, till they met on the opposite side. With a strong straight saw the bone was then nearly divided through the upper part of the great trochanter and part of the neck of the bone. The operation lasted but seven minutes, and no artery was opened that required to be tied. The limb was then drawn to its proper position, when the undivided portion of the bone separated with a snap. The wound was closed with a few points of suture, and the extremity secured in the fracture apparatus of Desault.*

* North Amer. Med and Surg. Journal, April, 1827.

"On the twentieth day after the operation the inflammatory symptoms had in a great measure subsided; some slight passive movements were then made with the limb, in directions natural to the healthy joint, which were cautiously repeated from time to time. By the sixtieth day the wound was completely healed; the patient was able to stand erect with the aid of crutches, and could advance his limb exclusively by muscular exertion. At the end of four months he was able to walk without apparent lameness, and all the movements of the limb were executed without pain. The foot could be carried twenty-two inches forward, twenty-six backward, and twenty outwards, and could be rotated inwards to the extent of six. The patient enjoyed the use of his artificial joint for a period of six years, at the end of which period, from causes attributable to intemperance and repeated falls upon the hip, the new joint became permanently anchylosed.

"The operation of Dr. Rogers was equally successful, and his patient left the hospital at the end of four months, apparently with a perfect use of the new joint, as he could walk with ease by the assistance of a cane. Of the ultimate result in this case—whether or not the new joint in the end became anchylosed, as in the case of Dr. Barton, the profession has not been informed. In consequence of the shortening of the limb of the opposite side from fracture, Dr. Rogers, instead of making a simple section, removed a wedge-shaped portion of the bone, in order to render the relative length of the two limbs more equal.

"In place of dividing the bone after section of the soft parts, as above described, it has been proposed by M. Louvrier, to produce directly by mechanical means a fracture of the neck of the thigh bone, a measure which he believes less dangerous than the former, and affording equal facilities for the formation of a false joint But provided it were possible to succeed in fracturing the bone at the desired point, there would be such danger by this method of doing violence to the surrounding parts, that it can offer no probable advantages to cause it to be compared to the neat and methodical section of the bone according to the method of Dr. Barton. It would be rather more easy to divide the femur below the trochanter, but by this measure an all-important object would be lost—that of obtaining a new and solid articulation upon the pelvic bones, so as to re-establish the functions of the limb with the least possible shortening."

In Dr. Rogers' case we learn that the limb ultimately again became anchylosed, but the operation resulted in manifest improvement to the patient.

Included in this same Part, a variety of highly important and interesting subjects is brought under notice and treated of according to the latest improvements in surgery. But it strikes us that there is wanting a section on the suppuration of bones and the operations called for to prevent caries and necrosis. Thus Nathan Smith's process for perforating the bone and letting out the purulent fluid, might have been introduced; and something might also have been said in regard to nodes and external suppuration.

Upon *resection of the Upper Jaw* our author is more than ordinarily complete in his details.

"In most instances," he says, "patients afflicted with malignant tumors of the jaws are unwilling to submit to an operation apparently so fearful as resection, until the upper maxilla of one side has become so much involved, as to require to be wholly taken away, and the other bones of the face so extensively implicated in the affection, that the saw and the bistoury will not alone suffice—the cutting forceps, the gouge and mallet, or the incandescent iron, being required to complete the extirpation, without regard to the anatomical connections of the bones.

"*General Rules.*—There are, however, certain general rules for resection, as applied to any portion of the bones of the face, which must be constantly ob-

served, as far as the nature of the lesion will allow. 1. To avoid injuring the parotid duct, or the branches of the portia dura nerve which give motion to the muscles of the face, by opening the soft parts in a direction as much as possible parallel with their course. 2. To protect from unnecessary injury the facial artery and the infraorbital and mental nerves. 3. To carry the line of incision or amputation in a part of the bone which is perfectly free from enlargement or other indication of unhealthy action. 4. To tie the arteries, which are commonly small, as they are divided and come into view, arresting the hemorrhage if it be profuse, until the ligature can be applied, by pressure on the common carotid or the temporal artery, and using the actual cautery to suppress capillary bleeding, as well as to destroy any diseased portion that cannot be reached by cutting instruments.

"The great improvement of modern surgery, in reference to the malignant growths of the upper maxillary bone, consists in its amputation entire at its points of articulation, instead of attempting to cut out with saws, forceps and gouges, the diseased mass alone. If, by so doing, we get rid of the whole site of the disease, the prospect of the return is infinitely less than when we have to attack in addition the palate, unguis, and malar bones."

But it is obvious enough that the rule laid down in the last paragraph, as the great improvement of modern surgery, is not always applicable.

Credit ought to have been given to Prof. A. H. Stevens, of this city, for his operation of extirpating the upper jaw in 1823, which was the *first* of the kind in this country. The patient, who recovered, is still living, and he is not only a good-looking man but positively a remarkably handsome one. He is a member of the bar of this city. This operation was performed according to the old method; and an account of it is to be found in the Appendix to Sterling's translation of Velpeau's Surgical Anatomy, New York, 1830.

Dr. S. was also the first to perform, in this country, the complete extirpation of the upper jaw at the articulation, according to Gensoul's method. This last operation was done perhaps a year before Dr. Warren's, at Boston.

Part III. Special Operations, under which are included those which are practised upon complex organs in particular regions of the body, viz., upon the eye, the ear, the nose, the mouth and its accessory organs, the neck, the thorax, the abdomen, the rectum and anus, and the genito-urinary organs.

The subject of salivary fistula, among the host of diseases marshalled under this Part, is well illustrated. The author remarks as follows:

"The facility and success of the treatment, as well as the choice of the method for the cure of a fistula of this duct, depends much on the fact of the orifice being the result of a wound or a recent ulcer; or if it be of long standing, whether the skin is healthy or diseased at its margin, whether the passage of the duct on the inner side of the fistula is opened or closed, or in fine, whether the fistula is situated anteriorly or posteriorly to the edge of the masseter.

"The various processes for the treatment of the fistula, may be ranged into four methods, according to the objects they are designed to fulfil, viz.: 1. Those for cicatrizing the fistulous orifice. 2. For dilating the inner portion of the natural duct, which in a fistula of long standing is usually found diminished in its diameter, or entirely obliterated. 3. For establishing a new opening into the mouth, or forming a new portion of the canal, where a part of the old has been completely obliterated. 4. For producing atrophy of the parotid gland, when all measures fail to restore a passage for its secretions."

But as these fistulæ, whether the result of ulceration, incision, or ope-

rations for extirpating tumors, are known sometimes to close spontaneously, they should never be interfered with surgically until nature has had some months' time to try what she can effect.

Part IV., comprising Plastic and Subcutaneous Operations, concludes the volume. Under this head are considered: "1. The subject of plastic operations, as applied to the cure of deformities arising from the loss of substance, and 2. that of the subcutaneous division of muscles, tendons, and fascia, for the distortions which arise from the retraction or shortening of these parts."

Plastic Surgery, which was scarcely known two or three years ago, as an art, save in the Oriental nations, and more recently in Italy, and next in France and Germany, is now one of the most important departments of surgery. Using the word, *Plastic*, as the generic term, various names are now in use expressive of its particular application. We have rhinoplasty, blephoroplasty, cheiloplasty, genoplasty, mloplasty, uranoplasty, palatoplasty, bronchoplasty, posthioplasty, chalinoplasty, oscheoplasty, urethroplasty. The meaning of these words is sufficiently obvious without explanation, *rhinoplasty* referring to the nose, *cheiloplasty* to the lips, *chalinoplasty* to the frenum in case it has been lost by disease, *oscheoplasty* to the restoration of a scrotum when the testicle becomes exposed:

"In cases where the scrotum has been destroyed by sloughing," says Prof. P., "so as to expose the testicle, nature alone is capable of producing an adventitious covering. But in those instances in which it is necessary to remove the scrotum in consequence of its enormous enlargement from elephantiasis, and the testicles (which in these cases are often found healthy) are preserved, flaps may be taken from the region of the thigh and groin, to form the new scrotal pouch and cover any portion of the penis that has been left exposed."

But other terms have been employed by different writers in the same generic sense as the words *Plastic Surgery* are used. Thus M. Blandin employs that of *Autoplasty*, and M. Velpeau, *Anaplasty;* and by several of the German writers, *Morioplasty* is used.

This is a subject upon which our author is essentially at home, having executed successfully many of the most difficult operations in this department of surgery; and in view of what has been accomplished within a few years, he might justly have said, in the celebrated words of the Latin bard, "quorum pars fui."

We shall not follow our author any further in these multiplied plastic and subcutaneous operations. Our own opinion is, that they have been carried to an unwarrantable extreme, and that the time has arrived when some experienced orthopedist should take up the subject and separate the wheat from the chaff. Who now hears of the operation of dividing the genio-glossi muscle for stammering, which, a short year ago, was hailed as one of the most brilliant triumphs of modern surgery? The star of orthopedy is, at this time, decidedly in the descendant.

Upon the whole, our opinion of this work, as the reader will have perceived from the preceding remarks, is strongly favorable, believing that the author has done a public service in its execution. We have not referred particularly to the author's original operations and suggestions, many of which are ingenious, and some of them highly important. We will here introduce, in conclusion, by way of showing Prof. P.'s tact in this way, the following description of his mode of applying injection for the radical cure of hernia:

"This process, as employed by the author, is as follows: The contents of the hernia must be completely returned into the cavity of the abdomen—for the process is only appropriate to cases of reduciable hernia, and those which are of large size. The apparatus required is a minute trocar and canula, a small graduated syringe, capable of containing a drachm of fluid, well fitted to the end of the canula, and a good-fitting truss for the purpose of making compression. The patient is to be placed on his back; the viscera are then to be reduced and the truss applied over the external ring for the purpose of keeping them up, as well as to prevent the possibility of the small quantity of fluid thrown in, from getting into the cavity of the abdomen. The surgeon then presses with the finger at the external ring so as to displace the cord inwards and bring the pulpy end of the finger on the spine of the pubis. At the outer side of the finger he now enters with a drilling motion the trocar and canula, till he feels the point strike the horizontal portion of the pubis just to the inner side of the spine of that bone. The point is then to be slightly retracted and turned upwards or downwards; the instrument is then to be further introduced till the point moves freely in all directions, showing it to be fairly lodged in the cavity of the sac. The point of the instrument should now be turned into the inguinal canal, for the purpose of scarifying freely the inner surface of the upper part of the sac, as well as that just below the internal ring. The trocar is now to be withdrawn, and the surgeon, again ascertaining that the canula has not been displaced from the cavity of the sac, throws in slowly and cautiously with the syringe, which should be held nearly vertical, half a drachm of Lugol's solution of iodine, or half a drachm of the tincture of cantharides, which should be lodged as nearly as may be at the orifice of the external ring. The canula is now to be removed, and the operation is completed. A compress should be laid above the upper margin of the external ring, pressed down firmly as with the finger, and the truss slid down upon it. The patient is to be kept from changing his position during the application of the truss, and should be confined for a week or ten days to his bed, with his thighs and thorax flexed, keeping up steadily as much pressure with the truss as can be borne without increasing the pain, in order to prevent the viscera from descending and breaking up the new adhesions while they are yet in the forming state, or avoiding the risk of their becoming strangulated or being rendered irreducible by the lymph effused into the cavity of the sac.

"The author has practised this operation in thirteen different cases, in but one of which was there any peritoneal soreness developed that excited the slightest apprehension, and in this case it subsided under the application of leeches and fomentations. In several of these a single operation appeared to be perfectly successful. In others—where the sac was larger, or the patient was less careful in keeping the truss steadily applied during the first week, or from a cautiousness in introducing in the first cases a more limited amount of fluid—the effect was merely to narrow the sac, rendering a repetition of the process necessary for the cure. Of the permanency of the cure, during *several years after the operation*, the author is unable to speak, most of the patients operated on being temporary residents of the Philadelphia Hospital, and passing after a few months beyond the reach of inquiry. While under the cognizance of the author, they were employed without a truss as laborers on the farm attached to the institution, and in no one of the cases, during this period, had the hernial tumor recurred. It would, however, be but a proper measure of precaution to direct the truss to be worn subsequently for several months, in order to confirm the cure.

"The greater number of these operations were performed by the author eight years ago, before classes of students at the Philadelphia Hospital, but as he was able to trace the future history of the cases but for a few months only, they were not deemed of sufficient importance for publication. Very recently M. Velpeau has published a process almost precisely the same as that just described."

We have also to add that, quite recently, a youthful son of Æsculapius from Yankee land was here in New York talking largely of the wonder-

ful cures produced by the same mode of operation, and claiming it as an *original* discovery. It may be well to add that this young M. D. was one of Dr. Pancoast's own manufacture, in other words, that he is a graduate of Jefferson Medical College.

ART. X.—*A Practical Treatise on Midwifery.* By M. CHAILLY, Doctor of Medicine and Ex-Chief of the Obstetrical Clinique of the Faculty of Paris, Professor of Midwifery, Member of the Society of Medical Emulation, &c., &c. Illustrated with 216 wood-cuts. Translated from the French, and edited by GUNNING S. BEDFORD, A.M., M.D., Professor of Midwifery and the Diseases of Women and Children in the University of New York. 8vo. pp. 530. Harper and Brothers. New York: 1844. [Second Notice.]*

A BRIEF notice of this work appeared in this journal while it was passing through the press, and we recur to it again in view of its meritorious claims upon the profession, but especially because of a meager and ill-omened criticism which has since appeared in the "Medical Examiner" of

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* [We give place to the accompanying notice, signed by initials which will be readily recognized, from a sense of the most imperious duty. That the review of the Philadelphia "Medical Examiner" is ill-natured and unjust, and prompted both by sectional jealousy and personal interest, will surely not be denied by any unprejudiced observer of the whole ground. We assuredly do not consider ourselves as bound to "take up the cudgels" whenever the Editor of the Examiner may be prompted by the black bile engendered by the envy of a rival city, to pour out the most violent abuse upon any and every medical publication that may be issued by the latter; but we do assure him that whenever, as on the present occasion, he drags us, by the head and shoulders, into such unwelcome proximity, he will never fail to hear our echoing thunder. Thus, in a notice of not more than half a page of the work of M. Chailly, he takes occasion to introduce no less than eight extracts, each of a few words, from our own Journal, in the way of showing off his powers at witticism. Now, it would have been just as appropriate to have introduced so many extracts from a public document by the Chinese minister, Linn; and, indeed, such would be the fate of this same personage, were he to lose his present place, as the newspapers have lately intimated, and come to New York and engage in the writing and publishing of medical books.

In the course of our editorial duties, it has fallen to our lot to pass judgment upon the work of M. Chailly, translated and edited by Dr. Bedford, of this city; and as we, in the exercise of our editorial judgment, thought fit to speak of its great practical value, this has been deemed by the Editor of the "Examiner" as sufficient cause to include our devoted head beneath the anathemas which he, with the utmost seeming *con amore*, fulminates upon the two "outside barbarians," M. Chailly and Dr. Bedford, as well as, indeed, upon all French obstetrical writers. Now, we will show, in a few words, that he, among all medical editors, stands alone in the attempt at the disparagement of M. Chailly's treatise, while we, in praising it, have spoken the universal language of England, France, and the United States, save the single exception of the "Medical Examiner," of Philadelphia.

Philadelphia, conducted by our friend, Professor Huston, who is himself the editor of the late American edition of Churchill's Theory and Practice of Midwifery.

It cannot have escaped observation that, within the last three years, the re-publication of *British* works in the obstetrical department has become quite the rage at Philadelphia, a new work having been thus issued annually. First, we had Dr. Rigby's work, as first published in Dr. Tweedie's Library; next, Dr. Ramsbotham's "Process of Parturition" appeared, with notes by an American physician; and since, the work of Dr. Churchill has been re-published, with additions by Professor Huston, intended to "Americanize" it for this market.

The latter gentleman, who is the editor of the Medical Examiner, seems to think it presumption, or something worse, in the New York press to interfere with the monopoly thus attempted in the department of Midwifery, and especially by publishing a new work on this subject, originating among such "outside barbarians" as the *French!* Indeed, he denies that, since the time of Baudelocque, there is anything of real importance on this subject emanating from the French! while, of the British works, of the last of which he is the American editor, he implies prodigious merit. And he complains grievously of M. Chailly and his American annotator, that they have not made suitable mention of the

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Passing over the medical journals of France, which are loud and unanimous in their praises of this extraordinary work, we will refer at once to those of England which surely cannot be accused of any partiality toward the medical literature of their neighbors across the channel. As an example, let us take the British and Foreign Medical Review, for October, 1842. It so happens that both the works of Chailly and of Churchill, the latter having been since republished in Philadelphia, with notes by the Editor of the Examiner, are here reviewed in connection; and of seven and a half pages given to the consideration of both, all but one short paragraph are devoted to the praises of M. Chailly's pages. Here is every word that is said relative to Churchill:

"The object of Dr. Churchill's volume is to offer to the student in midwifery a work, embracing the modern discoveries in the physiology of the uterine system, with all the recent improvements in practice, in a condensed form, amply illustrated and at a moderate price. It contains ample evidence of the industry with which the author has consulted every authority of eminence to bring his work up to the present state of science, and he confesses, generally, in the preface that he has not hesitated to avail himself of the labors of Drs. Ramsbotham, Rigby, and others. It would have been well, we think, if more precise acknowledgment had been granted to Dr. Ramsbotham, for we observe that many of the wood-cuts are copied exactly from his work: others are merely reversed. Dr. Churchill's work is upon the whole a fair and instructive compilation; but, as Malthus says, 'it is born into a world already possessed,' and we cannot conscientiously say that it will bear comparison as a *practical guide*, with other works that have recently appeared upon the same subject, and which we have noticed."

In our own country, the book of M. Chailly has been received with much more than ordinary favor. As for instance, in this city; also by the Boston Medical and Surgical Journal, by the Western Journal of Medicine and Surgery, Bell's Bulletin of Medical Science, and the Western Lancet, all of which give it the most enviable character for practical value and the clear style in which its precepts are conveyed.

It is thus seen that, on both sides of the Atlantic, the "Medical Examiner" stands alone in its opposition to this eminently practical work by M. Chailly—an opposition, the cause of which few will have any difficulty in explaining.]—Editor.

works of the British writers, and especially that of *Dr. Churchill*, edited by Professor Huston!

In these days of *book-makers*, in contradistinction from authors, it does, indeed, require no little moral courage to prepare and publish, as *M. Chailly* has done, a strictly "*Practical Treatise*;" and yet, in such a work, it did not occur to the critic of the "Medical Examiner" that it would not comport with the plan of M. Chailly to cite authorities or quote authors, whether British or American. Himself a *practical* man, and preparing for students and practitioners a brief, original, and *practical* work, such a course would have been inappropriate and absurd. It would have been otherwise only on the supposition that he was imitating the modern book-makers, both British and American, on this subject, who, as they are often mere compilers, are obliged to name the sources of their knowledge, by frequent references to, and citations of, the authors from whom they derive their materials. Not so with the work of M. Chailly, made up as it is of clinical practice, and abounding with the results of the author's personal observations and experience in a department cultivated by him with ardent and exclusive devotion; and this, too, in the midst of the unrivalled opportunities and facilities furnished by the Parisian schools and obstetrical cliniques of France, where the science is taught in greater detail and perfection than in any other part of the world.

But the work of M. Chailly will bear the test of scrutiny upon its own intrinsic merits, even though judged by comparison with any *British* author, not excepting Dr. Churchill, with Dr. Huston's notes superadded. For, notwithstanding the complaint that he is guilty either of "ignorance or neglect of everything that is not French," it will puzzle even a Philadelphia critic to point out any "great principle or important fact in our knowledge of obstetrics" which is not included in this "practical treatise;" nor does the author anywhere insinuate any exclusive claims for the French, or betray the narrow spirit of *national* predilections or prejudices, so unworthy of a liberal profession. The attempt to disparage him and his illustrious preceptor, Paul Dubois, unaccompanied by any other grounds than that they are Frenchmen, and flourish in Paris, merits no comment.

The superiority of M. Chailly's "Practical Treatise" over any of his predecessors, whether British or American, may be affirmed without undervaluing either of them, or in the least detracting from their peculiar merits, since it is strictly and pre-eminently what it purports to be, a "practical treatise," and hence occupies a field hitherto unexplored. Moreover, while it is designed as a book of reference for practitioners, the author seems especially to have adapted the work to the instruction of students; and, in this latter object, his success deserves high commendation. A few only of its distinctive peculiarities will here be indicated.

In the classification of individual subjects, which collectively constitute the science of Midwifery, no writer who has preceded him has so fully succeeded in simplifying the details under each of his divisions, presenting a *coup d'œil* of the whole in a single group. The following brief analysis of the arrangement here adopted, will illustrate the merits of the work in this respect.

In Part I. M. Chailly describes the organs of the female concerned in

parturition; one chapter being devoted to the pelvis, and another to the organs of generation.

Part II. treats of conception and pregnancy, the latter being divided into distinct chapters, separately devoted to normal, abnormal, and false pregnancy, and then to the diseases incident to pregnancy.

Part III. considers the subject of delivery in general, and includes the several aspects of this topic, such as spontaneous delivery, its causes, and phenomena, both physiological and mechanical; presentation of the vertex or head flexed: anomalies; prognosis; attentions required during labor; attentions to mother and child after delivery; complications which may retard or prevent labor; diseases unconnected with labor; accidents compromising the life of mother or child; uterine hemorrhage during labor; eclampsia; rupture of the uterus; rupture of the vagina; difficulties resulting from anomalies in labor; mechanical obstacles to parturition; obstetrical operations, &c., &c.

Part IV. treats of the accidents following delivery, first to the mother and then to the child.

By pursuing this natural order, M. Chailly conducts the pupil, by an easy transition, through all the intricacies of the subject, grouping together both the accidents and their treatment in each of the divisions, viz., pregnancy, delivery, and the puerperal period, each being thus rendered complete in itself. The multiplied drawings in outline, with which he has accompanied the text, in point of simplicity and accuracy, possess great merit; and the skill of the author, both in condensation and simplification, has here furnished to students of obstetric science, a work every way adapted to their purpose, and one which such cannot fail to appreciate.

The limits of this notice will not allow of any extensive allusion to the improvements of the work by the translator and editor, although his critical and practical notes are many of them worthy of high commendation, while of the translation, it may suffice to say that it has been faithfully performed, and in a flowing and graceful style. It is due to him, however, that a few of the American additions should be alluded to here, and we cannot refrain from transcribing one or more brief extracts, as specimens of the notes.

And, first, it is gratifying to remark the strong terms of reprobation in which the editor speaks of that class of obstetricians, who habitually carry with them, into the chambers of their parturient patients, the implements of death, whether in the shape of ergot, the forceps, or blunt hook, in the indiscriminate anticipation of opportunity to employ either the one or the other, should the case prove to be tedious or protracted. The cautions against the improper use of ergot, and the officious and dangerous use of the forceps, or any other instrument to hasten the process, where spontaneous delivery may rationally be confided to the unaided resources of nature, are timely, and should be reiterated by every teacher in the land. The cases reported by Prof. Bedford, as occurring within his knowledge, and in which fatal results were produced, cannot fail to prove a salutary warning to young practitioners, against imitating examples too often set by older men, from whom better things should be expected.

The indiscreet haste and immoral rashness, with which Cephalotomy and Embryulcia have sometimes been resorted to, are severely censured; and the editor deserves the thanks of the profession for the decided tes-

timony borne against such unprofessional hardihood. The following case, illustrating the murderous character of this horrible operation, needlessly performed upon a living child by two physicians, is a shocking exhibition of the butcheries perpetrated by ignorance and presumption in this department.

"Within the last twenty months I have seen *five* cases of rupture of the uterus. This is a fearful number, and the proportion is far too great for them all to have been spontaneous or unavoidable. Unfortunately, several of them were the direct consequences of gross mismanagement. Never can I forget the melancholy scene which I witnessed about eighteen months since in a case of this kind. I was requested to visit, about five miles from the city, a poor woman, who had been in labor thirty-six hours. From the commencement of her labor she had two medical gentlemen with her, and, for reasons which I trust were satisfactory to themselves and their consciences, they determined on the use of the perforator. This instrument was accordingly thrust into the brain of a living child; the labor, however, did not advance, and they proceeded to remove the fœtus piecemeal. After four hours' work they succeeded in bringing away the whole of the fœtus in a mangled condition, except the head, which was still in the womb. The friends of the unfortunate sufferer became alarmed; their confidence was lost; and the serious apprehensions entertained for the safety of the woman induced them to call in additional aid. I was sent for; and, hearing the particulars of the case as far as the messenger could communicate them, I hastened to the house, accompanied by Dr. Busteed and two of my pupils, Messrs. Burtsell and Cook. On entering the room of the unhappy woman, a scene disclosed itself at which the heart sickens. The patient was pale and exhausted; her countenance was that of a dying woman; she was almost pulseless, with cold extremities, and the perspiration of death on her. She begged us to relieve her, and said she was willing to undergo any suffering if she could only be spared to her children! Poor creature! had she known that she was about being removed from her children by the atrocious butchery of men to whom she had confided her life, she would not have made the appeal she did. In approaching the bed of this *murdered* woman, and in attempting to make a vaginal examination, to ascertain the condition of the womb (the head of the fœtus being still within its cavity, having been separated from the trunk), the reader may imagine my feelings on finding a mass of small intestines protruding from the vagina, and lying between the thighs! Such was the fact. The operators had not contented themselves with slaughtering the infant, but they ruptured the uterus, through which the intestines now protruded; and in this condition they abandoned the woman!! From what I could learn, she lay in this situation for three hours before I saw her, the doctors having left the house, stating that nothing more could be done!! Verily, death does terminate all human effort.

"Why was embryotomy had recourse to in this case? I never could ascertain. There must have been some secret reason for it; perhaps the burning love which some men have for the eclat of *bloody deeds*. There was no deformity of the pelvis; the head of the fœtus was of the ordinary size; and, as far as I could learn, it was nothing more than an ordinary protracted labor; the pains had not been severe, and there was not sufficient expulsive force to deliver the child; the doctors judged it advisable *to do something*, and they determined to turn and deliver by the feet. They accordingly proceeded; and, mistaking a hand for a foot, pulled it down into the vagina. They were then foiled; and, in order to complete the tragedy, they commenced the horrid business of cutting up the fœtus, and extracting it piecemeal! Thus were two lives wantonly sacrificed. The poor woman died in about two hours after I arrived, and, half an hour before she sunk, she observed, "*My poor baby was alive, for I felt it move when the doctors were tearing it away from me.*" Such language, uttered under such circumstances, was indeed calculated to awaken the reflections of the actors in this scene of carnage, and point out to them the magnitude

of their guilt. This may seem a harsh expression on my part, but, in the name of justice, is it not merited!"

Both the author and editor concur in condemning the barbarous crotchet, as unsafe to be used even upon a dead child, in view of its liability, in the best hands, to lacerate the body of the mother, whose preservation is alone the justifiable object of embryotomy, in the few cases in which this operation becomes necessary. The former substitutes the cephalotribe, or compressing forceps of M. Baudelocque, for breaking up the base of the skull, and extracting the body of the child, thus rejecting both the perforator and the crotchet. Prof. Bedford suggests an improvement in the form of the instrument, by a guard which slides in a groove upon the handle of the crotchet, and protects its point. The improvement will be deemed a valuable one by every practical accoucheur, who has ever been under the necessity of employing the crotchet, and, indeed, it obviates the well-founded objections to its use.

The instructions given in the notes of the editor, on the subject of the forceps, are eminently practical, and his improvements in the form and structure of this instrument, are valuable and novel. His criticism upon Ramsbotham, and other late writers, in relation to the rule for applying the forceps, demonstrates that he has unlearned in practice what he had learned in the books, and that he refuses unlimited subserviency to the authority even of the great names who have sanctioned this imbecile error. Indeed all practical men will concur with the editor that when artificial delivery is indicated, any serious danger to the life of either mother or child will demand the employment of the forceps, without any reference to the question whether or not "the ears of the child can be felt." The adhesion of such a man as Ramsbotham to this antiquated rule for the application of the forceps, is truly extraordinary, for he himself directs their use in certain cases where the head has not yet escaped from the superior strait of the pelvis, and when the ears cannot by possibility be felt. To allege that the ears are necessary as a "guide for the adaptation of the blades of the forceps" is still more surprising; for the recognition of the sutures, fontanelle, &c., will enable any competent accoucheur to grasp the head by its bi-parietal measurement and apply the forceps.

On the highly important topic of "premature artificial delivery," the following extract is introduced, as possessing peculiar practical interest:

"*Premature artificial delivery* I cannot but regard as one of the most precious aids of which, under certain trying circumstances, the accoucheur can possibly avail himself. Why enlightened France, a country which has done so much for the sound advancement of obstetric science, has for so long a period rejected this operation, I cannot understand. And I participate entirely in the feelings of pleasure expressed by our author, that the attention of his countrymen should at last have become awakened to the importance of this subject. In Germany and Holland, premature artificial delivery has been had recourse to of late years with the most satisfactory and marked results. According to Kilian (*Die Operat. Geburtshülfe*, p. 298), this operation, up to the year 1831, had been performed 161 times, viz.,

In England	72
In Germany	79
In Italy	7
In Holland	3
	161

"Of these 161 cases, 46 fœtuses were born dead and 115 living, 73 of which continued to live. Eight only of the mothers died after delivery, and five of these succumbed from causes entirely unconnected with the operation.

"Now, supposing that these cases absolutely called for this operation, here are results, between which and the results of the Cæsarean section, symphyseotomy, or craniotomy, either as regards the ultimate safety of the mother or child, no comparison can be instituted; the chances of safety both to mother and child being in favor of artificial delivery at least as five to one.

"While I heartily concur in the views entertained by Drs. Dubois and Chailly as to the value and importance of this operation, *when absolutely indicated*, yet there are some points of practice suggested by them from which I cannot but dissent, and I do so with great deference.

"1st. I do not think the introduction of the speculum at all necessary; the operation can be performed not only with facility, but entire safety, without this instrument. Again, I hold it to be a rule, which the pupil should ever keep in memory, that the feelings of his patient are always to be sacredly guarded, and on no account should there be an unnecessary exposure of her person.

"2d. The promiscuous administration of ergot, as an auxiliary in this operation, must occasionally be attended with serious consequences to both mother and child. For, in the first place, the justification of premature artificial delivery is founded on the fact that there is such a contraction in the bony or soft structures of the mother as seriously to endanger her life, as also that of her child, if she be permitted to pass on to her full term. Now, if one of the extremities of the fœtus should not present at the superior strait (and this cannot be positively ascertained before the dilatation of the uterine orifice), to administer ergot would be to ensure the death of the fœtus, and not unlikely serious lacerations might ensue to the mother. For example, if the child should present crosswise, or in any other manner so as to cause a disproportion between it and the parts through which it has to pass, ergot would certainly be contra-indicated.

"Instead of introducing a piece of prepared sponge into the orifice of the uterus, and afterward plugging up the vagina, I greatly prefer to use a simple gum-elastic bougie. Let the index finger of one hand be introduced as far as the neck of the womb; having reached this organ, the end of the finger should rest on the posterior lip; the bougie, being well lubricated with oil, is then to be carried along the finger, and when it reaches the os tincæ, the finger previously introduced should give the instrument a direction, NOT *from before backward, but from below upward*, in the line of the axis of the superior strait; the instrument thus directed, should be made merely to enter the orifice, and not be introduced higher, and by the finger already in the vagina the end of the instrument should be pushed gently backward and forward; and with this careful titillation, the uterus will often be thrown into contraction. Should, this, however, not prove sufficient to cause the action of the womb, after the lapse of twelve hours the instrument should be again introduced, and carried sufficiently high to rupture the membranes. This being done, the contractions usually proceed, and delivery is effected. Should, however, the womb become inert, I should much prefer awakening its energies by the gentle and cautious introduction of the finger into the uterine orifice than by the use of ergot, at least *until the absolute position* of the fœtus had been ascertained.

"I have been obliged to have recourse to premature artificial delivery twice in the same lady, and with entire success. In both instances I pursued the course just recommended.

"This lady was a native of Canada. Her husband, some months after marriage, took her to South America, where she was delivered of a child. He stated to me that she had been suffered to remain in labor five days; and after experiencing the most agonizing pains, she was spontaneously delivered of a putrid fœtus, of immense size. In about a month after her delivery she began to walk about her room, and although weak, she was otherwise in tolerable health. The first intimation she had that there was anything wrong was the excessive pain in any attempt at sexual intercourse; this proved to be impossible.

In the course of a few weeks they sailed for New York, and as soon as they arrived, my late lamented friend, Dr. Bushe, was sent for, and was requested to take charge of the case. At this time his health was so infirm as to disqualify him from attending general practice. He sent a note to me by her husband, requesting that I would take this lady under my professional charge. On visiting her and making an examination, I found that the entire vulva was in a state of adhesion, allowing only a small opening for the meatus urinarius. After hearing the account of her labor, this condition of things was easily explained. From the long and severe pressure of the head of the fœtus against the walls of the vagina, violent inflammation ensued, resulting in sloughing, and a consequent adhesion of the vaginal parietes. The indication in this case was obvious—the vagina needed restoration. Accordingly, I commenced an incision just below the meatus urinarius, and extended it about an inch downward; the scalpel soon came in contact with cicatrices so resisting that it appeared almost as if I was cutting on iron As soon as I completed the incision, I introduced a small sponge covered with oil silk, and retained it *in situ* with the T bandage. By occasionally withdrawing the sponge and renewing it, I found that the vagina yielded slowly to this sort of pressure. With the aid of a small-sized rectum bougie, carefully introduced twice a week, and, after being withdrawn, replaced by the sponge, the vagina, in the course of a month, permitted the introduction of the finger; then I had an opportunity of ascertaining its condition. It was filled with hard and unyielding cicatrices, in the form of rings. Having succeeded in dilating the vagina to this extent, I then recommended this lady to continue the sponge, and occasionally to introduce the bougie. In the course of three months, I was visited by her husband, who seemed somewhat chagrined, and he stated that it pained him to say that his wife thought she was again pregnant. This I found really to be the case, though it is manifest from what has been said, that sexual intercourse must have been attended with great difficulty. With this, however, I had nothing to do; the mischief had been done, and it was my duty to provide in the best possible manner for my patient's safety. The sponge and bougie (gradually increasing the size of both) were constantly used, and the vagina seemed to yield slightly to this continued pressure; this lady having passed six months and a half of her gestation, I deemed it prudent to hold a consultation as to the propriety of resorting to *premature delivery*, feeling in my own mind that (although contractions of the soft parts do sometimes yield to the combined influence of pregnancy and labor) in her situation it would, to say the least, be hazardous to the child to allow her to proceed to her full term. On proposing the consultation to her husband, he was anxious that a particular friend of his, Dr. Richardson, of Havana, then on a visit to this city, should be called in. This was accordingiy done; and after a full examination of all the circumstances, it was deemed prudent to bring on *artificial delivery*. This I did in the manner above indicated, and delivered the lady of a fine, healthy girl. This lady again became pregnant, and went to the city of Baltimore, where she was delivered at full term, with the forceps, of a dead child after a labor of six days!! In consequence of the contraction of the soft parts, the vagina was lacerated; vesico-vaginal fistulæ followed, and again the vagina became considerably contracted. About three years from her last delivery, I was again consulted in her case. She was pregnant, and I resorted to premature artificial delivery, the soft parts not being in a condition to justify delay until the completion of gestation. In this instance, too, the child was born alive, and lived for three months."

In other portions of the work, the notes of the editor will be found to be equally valuable, but we forbear to dwell upon them further, and must refer to the volume, which is made accessible to all, by the low price at which the publishers have issued it. We are not surprised to learn that within a single month, the whole of the first edition has been disposed of, and that another and larger reprint is already in press, and will soon be forthcoming to supply the demand.

We heartily respond to the favorable opinions expressed by the French and British reviewers of the work of M. Chailly, and we predict similar justice in reference to the American edition, everywhere but in the Philadelphia Medical Examiner, which is conducted by the editor of a rival publication. And when even he has taken time to read the work, which he evidently has not done, he will find occasion to correct the errors into which his indiscreet and hasty critique has betrayed him. And notwithstanding his prejudices against "everything French," and especially against the publications of the "Commercial Metropolis," he may yet find it expedient to do justice, for his own sake, if not for the sake of the homage due to the majesty of truth.

New York, now so prosperous in her Medical schools, will soon not be behind any sister city in the authorship or republication of standard editions of Medical books. Several of our publishing houses are turning their attention to this department with a spirit of zeal and liberality truly commendable, and we predict, while we bespeak for them, ample success.

D. M. R.

ART. XI.—*A Complete Condensed Practical Treatise on Ophthalmic Medicine.* By EDWARD OCTAVIUS HOCKEN, M.D., Physician to the Blenheim Street Infirmary and Free Dispensary; Fellow of the Royal Medical and Chirurgical Society, etc. Part I. 12mo., pp. 108. London: Samuel Higley.

THIS work, as the prospectus announces, will be completed in three parts; and it is proposed to present, in a comparatively small space and at a trifling expense, a complete practical digest of the present state of Ophthalmic Medicine.

The author is already favorably known to the profession by a kindred treatise on "Amaurosis and Amaurotic Affections, with the connected Diseases," and by papers on several other medical subjects. He comes to us, in truth, sufficiently well recommended on every side.

"The object of the author," he says, "in the following work is to present the student and actively engaged practitioner with a complete digest of all that is known of the Diseases of the Eye, both from his own experience and from all sources, British and Foreign. In order, therefore, to suit their convenience, he has condensed his chapters, as far as was compatible with a *complete practical* view of the subjects treated of, by the use of clear, concise language, and by the omission of all unimportant or useless matters, tedious details of cases, historical particulars, and mere learning, by which the pages of more voluminous works are swelled. At the same time, he has endeavored to introduce every useful, practical, and interesting fact, which he has learnt by the very extensive opportunities of observation afforded him by cases under his own or others' care during the last nine or ten years, and by the perusal and digestion of almost all the books, essays, and papers published on ophthalmology, or which, although not devoted to the subject, contain valuable hints in connection with it. As the main object has been to render the volume a faithful guide in treatment, the author has introduced a chapter on the best modes of examining the eye in various diseases, of arriving at a just diagnosis, and of directing treatment on the most successful principles."

PART THIRD.

1.

Foreign Medical Intelligence.

ANATOMY AND PHYSIOLOGY.

1. *Process of Ossification.*—In the "Physiological Anatomy" of Todd and Bowman, is a description of the process of ossification, which is, in several points, new and interesting (p. 117). In the vicinity of the point of ossification the nucleated cartilage-cells (which usually are scattered irregularly) arrange themselves in linear series, which run down, as it were, to the ossifying surface. At first the series are small and not regular, but nearer to the ossifying part they form rows of twenty or thirty. The cells in these rows are closely compressed, and their nuclei seem flattened. The lowest rows dip into and rest in deep narrow cups of bone, formed by the osseous transformation of the intercellular substance between the rows, and as ossification advances these cups are converted into closed areolæ or *cancelli*, with extremely thin lamelliform walls. Immediately upon the ossifying surface nuclei, which before were closely compacted, separate considerably from one another by the increase of material within the cells: they also often enlarge and become more transparent. Deeper in the new bone the lamellæ which inclose the cancelli, and which were formed by the ossification of the intercellular substance, are found thicker and more like perfect bone: they include in their substance elongated oval spaces, which, except that they are roughly granular, exactly resemble the ordinary *bone corpuscles*, and which are evidently the nuclei of the cells of the temporary cartilages. The curvilinear outline of the now ossified cells of these nuclei can often be discerned. Within the cancelli only a few cells can be detected, these cavities (of the cancelli) being chiefly occupied by a quantity of new substance, consisting of granules, and resembling a formative blastema or basis. It thus appears that after the ossification of the intercellular substance (by which are formed the lamellæ which are the walls of the cancelli), the rows of cartilage all arrange themselves on the inner surface of these newly-formed cancelli, and are ossified, with the exception of their nuclei, which remain granular, and subsequently form the corpuscles of bone; and that a new substance or blastema appears within the cancelli, from which, probably, vessels are developed, and the further steps in the growth of the bone proceed.—*British and Foreign Med. Review.* January, 1844.

2. *Testicles.*—Mr. Gulliver has confirmed R. Wagner's observation, that the general enlargement of the testicles which takes place as the period of procreation approaches, is accompanied by enlargement of the individual seminal tubes. During winter he finds that the seminal tubes of birds are tolerably thick and strong; but at the season of procreation semen accumulates in them, and their coats are so distended and attenuated that they are very easily ruptured. The same thinning and enlargement of the tubules occurs in the development of the human testicles at puberty.

An interesting case, proving the sympathy of the vital organs with the testicles, is recorded by Dr. Schlesier. A healthy man engaged in a fray in the dark, was suddenly heard to shriek out: he fell in convulsions and died in five minutes. On examination the only injury found was the rupture of both the spermatic arteries and veins at the internal rings, produced by the scrotum and testicles having been seized and pulled down by one of those with whom the man was fighting.—*Ibid.*

MEDICAL PATHOLOGY AND PRACTICAL MEDICINE.

3. *On Febris Intermittens and Hypertrophy of the Spleen, showing the Influence of large Doses of Quinine.*—The following cases, chosen among numerous others, prove that intermittent fever is produced by hypertrophy of the spleen (*hypersplenohæmia* or *hypersplenotrophia*, according as there is merely a congestive state, *hyperæmia*, or true *hypertrophia*), and, at the same time, show that the discovery of this condition was obtained by plessimetry. The practical induction to be drawn from this fact, was to discover a remedy which would act principally on the diseased organ; and clinical observations show that the sulphate of quinine possesses that quality to an eminent degree; for, when administered, the spleen decreases rapidly in size, and at the same time, the paroxysms of the fever diminish in intensity, and totally disappear when the organ is reduced to its normal state. This fact may be daily observed in the wards of the Professor at the Pitié.

Case 1.—A man at No. 17, Salee St. Raphael, was affected with intermittent fever, the paroxysms of which came on every eighth day. By plessimetry the spleen was found to be upwards of eight inches in length. Desirous of proving to several physicians present the efficacy of the sulphate of quinine, and as no immediate danger was to be feared, the Professor administered nothing for about a fortnight, during which time two new paroxysms took place. He then ordered 15 grains of the sulphate of quinine, and, in the space of five minutes, the dimensions of the spleen had decreased about one inch. The dose was repeated in the evening, and the next day the length of the organ was only 6½ inches. The vegetable alkali was continued until the spleen offered only 4½ inches in length (its normal size), after which the paroxysms disappeared, and the patient left the hospital cured.

Case 2.—Jean Janin, a mason by trade, ætat. 39, native of a department where intermittent fever is endemic, especially in autumn. In the month of September, 1830, he was seized with *quartana*, which lasted thirteen days, and which yielded to a few doses of cinchona. Admitted into the hospital for a bronchitis, he stated that, three days before, he had experienced an abundant epistaxis, by which he had lost about lb.j of blood. On examination, the dimensions of the spleen were found to be in length 11⅛ inches, breadth 5½ inches. Its anterior border was easily felt on depressing the abdominal parietes; it descended as low as the fossa iliaca, was hard and thick. The patient was placed so as to relax as much as possible the abdominal muscles, and several persons were requested to place their hands on the spleen. The sulphate of quinine was then administered at the dose of grs. xviij; a minute had hardly elapsed before the organ was felt to recede, and four minutes after, it presented less than 10 inches in length. The quinine was continued, the dose being gradually increased to grs. xxvij morning and evening. The third day the patient was much better, and could lie on either side without experiencing the least pain, which he could not do before his entry. Five days after, the spleen was only 5½ inches in length, which, though larger than in its normal state, had decreased upwards of one-half; abdomen decreased in size; fæces natural. The patient then left the hospital, if not completely cured, at least much better.

Case 3.—At No. 34, Salle St. Raphael, is a man affected with *hypersplenotrophia:* dimensions of the spleen—length upwards of 4½ inches, breadth 4 inches; and from the matity produced on percussion, it may be concluded that its thickness was considerable. Questioned, the patient mentioned that he had a paroxysm (the first, the day before he entered the hospital), but as there might be some doubt as to the existence of paroxysmal fever, notwithstanding the enlarged state of the spleen, Professor Piorry waited until a second paroxysm appeared, ere he administered the sulphate of quinine. The return of the fever did not cause the spleen to increase in size, a fact which proves that the former is the effect, not the cause, of the hypertrophy of the latter. After the second paroxysm, grs. vj. of the sulphate of quinine were administered, and repeated the next day, which quantity was sufficient to reduce the spleen to its normal size, and to prevent the return of the fever. [The preceding remarks by Prof. Piorry, of Paris, are from the London Medical Times of May 18th.]

PATHOLOGICAL, THERAPEUTICAL, AND OPERATIVE SURGERY.

4. *Foreign Body in the Bronchia of a new-born Infant.*—The following case was related at the *clinique* of one of the professors at Marseilles. A child, two months old, was seated upon the lap of its mother, who was engaged in preparing beans for dinner; suddenly he was seized with a convulsive cough, recurring at intervals, and always succeeded by a perfect calm. A physician was called, who, on examination, found the following condition of things: face pale; countenance fixed and expressing great uneasiness; respiration difficult, and detected by the motion of the nostrils; no fever; and nothing revealed by auscultation. The slightest movement induces a suffocating access of cough, and the child leans forward and opens his mouth wide, as if for vomiting. Various hypotheses were suggested as to the nature of the case, and, in the meantime, leeches, a vomit, and blisters, were prescribed. A foreign substance being finally suspected, tracheotomy was performed, but it proved unsuccessful, as the child soon after died. At the autopsy, a large white bean was found at the bifurcation of the bronchial tubes; it was swollen, and surrounded by pus and false membrame; the lungs were hepatized.

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OBSTETRICS AND DISEASES OF FEMALES.

5. *Influence of Menstruation on Lactation.*—M. Raciborski investigated the influence of menstruation on the milk of nurses, and on the health of the infant in seven women who menstruated while suckling. He could discover no other change in the milk at those periods, than that it contained a smaller quantity of cream; and he concludes that the injurious influence of menstruation on the health of the infant has been greatly exaggerated, and that the circumstance of a woman menstruating during lactation is not a sufficient reason for rejecting her as a wet nurse.—*Brit. and For. Med. Review, April*, 1844.

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MISCELLANEA.

6. *Accident to M. Gay-Lussac.*—Galignani's Paris Messenger contains the following account of an accident which recently happened to the celebrated chemist, M. Gay-Lussac:

M. Gay-Lussac was a short time since seriously injured in his Laboratory at the Garden of Plants. As he was opening a bottle in order to make an experiment, the sudden admission of air inflamed the contents and burst the bottle with such violence that persons outside conceived it to be the report of a musket. M. Gay-Lussac was thrown down, with his face and hands dreadfully cut by the fragments of the bottle; but it was hoped that no serious consequences would ensue. A young assistant who was with him at the time, received a few wounds, but they are comparatively slight.

[This accident is precisely similar to one that happened to Professor Hare, of Philadelphia, some years since, when the Professor and his assistant, Dr. Godon, of the U. S. Navy, were both seriously injured by an analogous explosion. We are pleased to learn by recent French journals, that M. Gay-Lussac has again made his appearance at the Academy, on which occasion, he thanked the members for the interest they had shown in his welfare, while the President expressed to him the great pleasure which his restoration to health afforded to all his colleagues.]

2.

American Medical Intelligence.

Copland's Dictionary of Practical Medicine.—We heartily congratulate the profession on the following announcement, by which they are informed of the immediate re-publication of the great work of Dr. Copland, by Mr. Langley, the enterprising publisher of this Journal. It will be issued upon such terms as will place it within the reach of every medical man in the United States; and it will be brought out under the superintendence of a gentleman, whose character and qualifications are too well known to need any commendation at our hands. We cannot express our own estimation of the value of the work, better than by quoting a few passages from the April number of Dr. Forbes's "British and Foreign Medical Review:"

"It affords us sincere pleasure to be able to announce to our readers, that the great work, whose title we have just transcribed, has at length arrived at such a stage of its progress, and attained such a form, as to claim a more formal notice from us than we have hitherto given it. Two-thirds of the gigantic task undertaken by Dr. Copland are completed, and the first two volumes now stand before us in their own portly size, and fitly appareled for the bookcase. We are given to understand that the materials of the remaining volume are in an advanced state of preparation, and that the future parts will appear at shorter intervals than those of the last volume. * * *

"The thing, however, that more immediately concerns us is, that here we have before us two huge volumes out of the three of which the Dictionary is to consist; and when we record this 'great fact,' we feel it equally a great duty to record our opinion—that, as there is no medical practitioner in this country, old or young, high or low, who will not derive great pleasure and great profit by consulting them, so we think there is no one who should not add them to his library. The information amassed in these volumes is literally enormous, and contemplated simply as an accumulation, it must excite astonishment as the production of an individual; but when it is further considered, that the whole of the materials have been most carefully selected from all existing sources, most patiently studied, valued, winnowed, digested, elaborated, and arranged into compact and simple forms, easily accessible and readily available in practice, it is not easy to point out, in the whole of medical literature, any work by a single hand, so much calculated to excite admiration of the industry and talents of the author. In every article contained in the volumes, the reader cannot fail to be struck with the writer's most extensive learning, which has enabled him to collect knowledge from all authorities, ancient and modern, foreign and domestic; and he will, at the same time, be no less surprised than gratified at the singular power which has arranged the whole so lucidly and in such systematic order. * * * * * * *

"In comparing the 'Dictionary of Practical Medicine' with its numerous rivals, the work of a large body of contributors, we have always been surprised, and we are more so now than ever, that one man should be able to cope with so many. And looking at the one near us, and which may be regarded as perhaps the best of its class, the *Dictionnaire de Médicine Pratique*, we are naturally reminded of the complimentary couplet addressed to Samuel Johnson on the completion of *his* Dictionary, and which, *mutato nomine*, may, with at least equal propriety, be applied to our author:

> "And *Copland* well armed like a hero of yore,
> Has beat forty Frenchmen and will beat forty more."

On the following page will be found the announcement of the American publisher.

HENRY G. LANGLEY,

8 ASTOR HOUSE, NEW YORK,

WILL PUBLISH

A DICTIONARY OF PRACTICAL MEDICINE,

COMPRISING

GENERAL PATHOLOGY, THE NATURE AND TREATMENT OF DISEASES, MORBID STRICTURES,

And the Disorders especially incidental to Climates, to the Sex, and to the different Epochs of Life;

With numerous Prescriptions for the medicines recommended.

A Classification of Diseases according to Pathological Principles; a Copious Bibliography, with references; and an Appendix of approved Formulæ.

The whole forming a Library of Pathology and Practical Medicine, and a Digest of Medical Literature.

BY JAMES COPLAND, M.D., F.R.S.,

Fellow of the Royal College of Physicians; Vice-President of the Royal Medical and Chirurgical Society of London; Lecturer on the Principles and Practice of Medicine in the Middlesex Hospital Medical School, &c., &c., &c.

Edited, with Notes and Additions,

BY CHARLES A. LEE, M.D.,

Professor of General Pathology and Materia Medica in Geneva Medical College, &c., &c.

"Dr. Copland has here published a series of essays which may be justly said to be unrivalled for extent and accuracy of information, methodic arrangement, and the condensed form in which they are composed. If he proceeds as he has commenced, he will produce a work which is yet unrivalled in the English language."—*Edin. Med. & Surg. Jour.*

"The immense quantity of matter which is here compressed into a small space, must render the work a very popular one, more especially for those practitioners who reside in the country, or travel abroad, on account of the facility of reference, and the portability of the Dictionary. The labor is immense, and will stamp the author as a man of great research and sound judgment."—*Medico-Chirurgical Review.*

"Dr. Copland's book bears internal evidence of having been the object of years of labor and investigation, directed to the end in view. Not the least praise we have to bestow upon the execution, is the just keeping observed in respect to the length of the articles; those which relate to the diseases of moment being fully discussed in well-digested essays, while no attempt is made to give consequence to those which are unimportant. The work is a miracle of industry, and forms a fitting companion to the justly-popular 'Surgical Dictionary' of Mr. Cooper."—*London Medical Gazette.*

"A careful perusal of this volume enables us to bestow upon it our full and unequivocal approbation. Whether we estimate its individual merits, or regard it in comparison with its contemporary rivals in the various European languages, we find it entitled to rank with the foremost."—*Lancet.*

"So condensed in style, and so excellent in execution, that analysis is impossible, and criticism very difficult."—*Medical Quarterly Review.*

"A work displaying such extraordinary extent of reading, and such deep and comprehensive reflection, as to demand a place in the library of every medical man."—*Elliotson's Physiology.*

☞ *See also the preceding notice from the British and Foreign Medical Review.*

TERMS OF PUBLICATION.—The work will be printed from a new legible type, in double columns, and issued in monthly parts of 144 pages or more, price 50 cents each, forming about 20 parts.

ORIGINAL PROSPECTUS.

"This work contains in an abstract and condensed, yet comprehensive form, the opinions and practice of the most experienced writers, British and Foreign, so digested and wrought up with the results of the Author's Practice, that the Student and young Practitioner will not be bewildered in the diversity of the opinions and facts adduced for their instruction, but be guided in the difficult path, on which they have entered, and enabled, with a due exercise of their powers of observation and discrimination, to arrive at just conclusions and successful Practical results. To the experienced Practitioner, also, the work will present a diversified range of opinions, methods of cure, and authorities, which his mature judgment will enable him to apply in an appropriate manner to particular cases. It also comprises the complications and modified states of Disease, which are even more frequently met with in practice, than those specific forms too often described by Nosologists as constant and unvarying types, to which morbid actions, occurring under a great variety of circumstances, can never closely adhere. When discussing the methods of cure, the Author has attended to the various stages, states, and associations of Disease, to the regimen of the patient, and to the management of convalescence. He has given prescriptions for the medicines recommended in the most efficient states of combination. He has also added, in an Appendix, and arranged in Alphabetical order, upwards of a thousand Formulæ selected from those most approved, contained in the Pharmacopœias of various hospitals and foreign countries, and the writings of eminent practical Physicians, and from the notes of his own practice. The book moreover contains a full exposition of the general principles of Pathology: a minute description of the numerous organic lesions of the human body; and a detailed account of those states of disorder, incidental to the Sex, the different periods of life, and to particular climates, with the peculiarities resulting from temperament, and habit of body. It is prefaced by a classification of Diseases, according to pathological principles, and in natural order, commencing with the simplest and most limited states of functional disorder, advancing through the more extended and complicated diseases to those affecting the whole frame, and concluding with such as consist chiefly of morbid structure—the classification thus being a key to the systematic study of practical medicine, as well as an arranged contents of the work. In order to facilitate reference, as well as to avoid repetition, each article is methodically divided and headed, and the paragraphs numbered: and to each, a copious Bibliography, with References, is added.

"The author having, since 1814, been in the habit of recording references to such medical works, memoirs, and subjects as he has found upon perusal deserving of notice, presents the accumulated results to the reader. He has excluded from his Bibliography all inferior productions, and nearly all inaugural dissertations; he has selected those works, with whose character he is acquainted, and whose authors are distinguished, and he has brought down his record to the present day. He has likewise given copious references to such original papers and memoirs in the Transactions of societies, and in medical journals, as merit notice, believing them to constitute a most valuable part of medical literature and science.

"In conclusion, the work contains the results of many years of laborious study and research, and upwards of twenty-five years' extensive and diversified experience, forming of itself a Library of Practical Medicine, and a copious Digest of Medical Literature."

Cavendish Square, 1840.

NOTICE BY THE AMERICAN EDITOR.

In undertaking the Editorship of Dr. Copland's "Dictionary of Practical Medicine," the undersigned deems it proper, under a deep sense of the responsibilities he has assumed, to state briefly his views and intentions, as to the manner in which he shall aim to discharge the important task he has been urged to perform.

Regarding this work as decidedly the leading Medical production of the age, both as regards the philosophy it inculcates, the vast accumulation of facts it presents, as well as the systematic order in which they are arranged, the Editor will not feel himself justified in altering, in the slightest degree, the original text. He, therefore, pledges himself to preserve the different articles in their integrity, neither mutilating by omissions, nor qualifying by alterations and modifications. Indeed, so highly elaborated and finished are the different articles, that they form very complete monographs on the subjects of which they treat; and no one could expect, unless prompted by a high degree of arrogance and self-conceit, to be able to improve upon the labors of the accomplished author. But, it is to be borne in mind, at the same time, that, as medicine is a rapidly progressive science, additions are constantly being made to our knowledge in its various departments; moreover, the medical literature of our country is but little known across the Atlantic, and the works of American physicians have heretofore not perhaps received that degree of attention abroad, to which they are justly entitled. These omissions and deficiencies, so far as they exist, it is the design of the publisher to have supplied; and it will, therefore, be the aim of the Editor to keep this object especially in view.

It is a fact also universally acknowledged, that in consequence of the diversified range of our climate and its extreme vicissitudes, we have diseases which are not only unknown to the milder and more uniform climate of Great Britain, as yellow fever, cholera infantum, &c., but many of our diseases assume a type and malignancy never witnessed in that country; and hence they require important modifications with regard to their treatment. These facts will not be lost sight of in editing the work; and in whatever additions may be made, practical utility will be constantly kept in view. Such additions will be included in brackets [ ].

CHARLES A. LEE, M. D.

New York, June 20, 1844.

One word more in conclusion. This mighty work, which constitutes a *chef-d'œuvre* of its kind, presents, unlike the *Dictionnaire* with its forty French collaborators, referred to by the distinguished editor of the British and Foreign Medical Review, the admirable feature of being pervaded, literally from A to Z, by that harmony of ideas, which can be infused only by the exclusively controlling influence of one great master-mind. And this is a remark which applies equally to all its other rivals.

We are further pleased, in an especial degree, with the *position* of the American Editor, as *defined*, in the language of our politicians, by himself, in the preceding paragraphs. We highly approve of his intention, to embody in this vast magazine of medical knowledge, the medical literature peculiar to this country; and we rejoice the more in the announcement, as we happen to know that he is second to no one in familiarity with this subject. Moreover, we know that even-handed justice will be meted out to every fellow-countryman, who has contributed to the stores of our domestic medical literature, if but in the proportion of the widow's mite. Above all things, he will avoid following in the footsteps of the illustrious example now before him, in a neighboring city, of *quoting nobody but himself*.

Œsophagotomy.—An operation for opening the œsophagus for the purpose of supplying the stomach with food, was performed by Dr. John Watson of this city, on the 12th of February last. The patient, was a young gentleman from Massachusetts, who had been for some months laboring under stricture of the œsophagus. For some two months subsequent to the operation, the case gave promise of permanent relief. Subsequently however the disease, which was of a tuberculous nature, extended to the larynx, rendering an opening into the trachea necessary. The patient survived this last operation about a week; and he finally died on the 14th of May, of the extension of inflammation to the chest. The present, we believe, is the first instance in which the operation of œsophagotomy has ever been performed for any other purpose than the extraction of foreign substances from the gullet; and it is the fourth authentic case, in which it has been performed for any purpose. For more than three months, all the food that this patient received into the stomach, was supplied through a gum-elastic tube. The extension of disease to the air passages may be looked upon as incidental; and had it not ensued, there is no reason to doubt that the patient's life might have been preserved.

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Professor Paine and the Medico-Chirurgical Review.—The readers of our first volume will recollect Prof. Paine's "*Lecture on the Improvement of Medical Education in the United States;*" and this it was that has elicited from the editor of that Journal certain remarks, which called forth from Dr. P. a rejoinder, which he published forthwith in the Boston Medical and Surgical Journal.

We regret our want of space which prevents the giving of Dr. Paine's rejoinder entire. We are obliged to be content with the following passages:

"Sir—I see by the April number of the Medico-Chirurgical Review that that Journal, after being long passive under my 'Examination of Reviews,' has ventured upon a misrepresentation of the objects of my humble Introductory Lecture '*On the Improvement of Medical Education in the United States*,' delivered before my Medical Class at the session of 1842–3.

"The Journal is pleased to complain, in the first instance, of my efforts to counteract the wretched speculations by which Liebig, and such followers of his as the Medico-Chirurgical, are attempting to overthrow the great fabric of medicine. The Journal is quite welcome to its lament over my successful efforts in that particular; and, having accomplished the task which I had prescribed for myself, I shall pass on to the Reviewer's misrepresentation of the main object of my lecture.

"The Reviewer remarks that the lecturer proceeds to consider the '*Improvement of Medical Education*,' by which, however, we very soon found, to our *utter astonishment*, the learned lecturer means neither more nor less than *lowering* the standard of professional requirements.'

"Whoever may have read my '*Examination of Reviews*' will not be surprised to learn that the foregoing statement is *utterly false*, and that the objects of the lecture are exactly the reverse. The whole article, turning upon that misstatement, is equally a tissue of misrepresentations. It was, however, a fitting occasion to strike a blow at all my former efforts, by representing me in the attitude of discouraging those profound attainments in medicine for which I have so long and laboriously contended. And yet who, for a moment, can believe that one, like myself, who has devoted his life to the cultivation, if not to the improvement, of medicine, should, after a life of such unintermitting toil, have become, at last, recreant to the great cause for which he has been thus long an unflinching champion?

"The Reviewer is also false in attempting to convey the belief that my remarks on the 'Improvement of Medical Education' were designed to be of universal application; whereas they were wholly and expressly limited to the existing state of society in the United States; nor is there a word said by the Reviewer of a main intention of the lecturer to sustain the medical colleges in the interior of this country.

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"But my present business is with the Medico-Chirurgical Review, which, on a former occasion, I convicted of a coward's falsehood; for, unlike its associate (the British and Foreign Medical Review) in a crusade against my literary labors, it had not the spirit even to stand by its own corruption, but received, with tacit submission, the brand of infamy. Nor shall I be now restrained from again indicating, by the Reviewer's own admissions, the spirit which has hitherto prompted his misrepresentations of the labors of American physicians, and his vituperation of the American medical profession. In the article with which my unpretending lecture has been honored is a reference to a criticism on Liebig's *Animal Chemistry* in the North American Review, which has been so perverted by the imagination of the foreign Reviewer, that he is thrown into a paroxysm of indignation which demanded a nation's atonement. We read, for example, that,—

"'With respect to Dr. Paine's learned coadjutor in the quixotic attempt to demolish Liebig's theories, whose tirade appeared, if we mistake not, in the North American Review for October, 1842, we shall only say, that its *vulgar verbosity, unbecoming personalities, and rancorous hatred of everything British*, render it perfectly safe from our notice; *non tali auxilio, nec defensoribus istis tempus eget.*'

* * * * * * *

"Here I stop; not doubting that the impartial reader will trust my affirmation that I remain as ever, a devoted advocate of the highest culture of medical science; that my humble lecture has exclusively and ardently for its objects the interests and dissemination of that science; and, finally, may I not express the hope that I may be permitted to go on hereafter in the promotion of those objects without further molestation, and especially without a rancorous falsification of my arduous labors in behalf of medicine.

"I remain, Mr. Editor, very respectfully, yours,

"MARTYN PAINE.

"*New York, May* 9, 1844."

We are truly sorry that we cannot find even the shadow of a justification for the inconsiderate and reprehensible introduction of the following political Billingsgate into a scientific journal, by the veteran editor of the Medico-Chirurgical Review, and which Dr. Paine condemns with the most just severity:

"We cannot but remark with satisfaction the fortunate condition of the University of *Pennsylvania*. The '*drab-colored men*' may well make doctors of their sons, seeing that they can pay the *matriculation fee* with other people's money. We only trust that that very fee is not *repudiated*, and that in that very respectable State, there is in their dealings with each other, *honor among thieves*."

Had the editor looked back to the history of that war which separated us politically from the mother-country, and read in its pages how Dr. Franklin procured from our government an order to be sent to all our vessels of war, including those of our French allies, not to molest any of the ships belonging to Captain Cook's fleet of discovery, which were then on their return voyage, or had he brought to mind the more recent circumstance, that Napoleon, when in deadly political hostility with England, awarded a scientific premium to Sir Humphrey Davy, never would

he have descended to the desecration of the pages of science by the introduction of such low slang as the "*drab-colored men*" of Pennsylvania, in connection with the phrase of "*honor among thieves.*"

Thus much we feel constrained to say as due to our national honor. Moreover, this is the last country upon which the editor of the Medico-Chirurgical Review ought to have vented his spleen; for it is here that his editorial labors have been most liberally appreciated by the profession generally. For the last twelve years, has his journal been a regular visitant to all the military posts of the United States at the expense of government; and now, when these same readers open its pages, anxious to learn what is new in medical science, their eyes are greeted with a national insult! We draw attention to this fact more particularly, as this Journal travels to every one of the same points.

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Dr. Pfeiffer's Discovery of a Preventive of the Contagion of Syphilis.—In our last number, we mentioned the important fact that, at the Hospitals of St. Petersburg, a prophylactic soap against syphilis, consisting, as regards its active ingredients, of tannin, of the bichloride of mercury, and chloride of lime, had been discovered, without the remotest expectation, at the time, of making so speedy a personal acquaintance with the ingenious discoverer. Dr. P., who is a German, has served for some years in the Russian military service; but, having migrated to this country, he is now a resident of Brooklyn, where he practises his profession. Upon the subject of this discovery, his views are of the most liberal character, as his object is to be a benefactor to the human family, without reference to any personal advantages. He is now engaged in preparing a *brochure* upon this subject, in which the true nature of this discovery, and the benefits to be derived from it, will be set forth in detail.

The following account of this discovery has been furnished to us by his brother, Dr. Frederick Pfeiffer, of Philadelphia:

"Dr. J. D. Pfeiffer (my brother), who has been, for the last twelve years, in the Imperial Russian service, has, after many philosophic experiments, discovered a remedy, by which it is presumed that syphilis may be, in a short time, entirely eradicated. This remedy, imployed soon after the coitus, is a certain prophylactic against the infection of this disease; and, in like manner, does it prevent infection when syphilitic lymph has accidentally been deposited upon any abraded surface, whether from a wound or from ulcerative action. The infallibility of this preventive, Dr. Pfeiffer has tested thoroughly upon himself. He has been repeatedly inoculated with syphilitic lymph, by different physicians; and in no instance, under the use of his remedy, has any symptom whatever of the disease appeared.

In the Kalinka Hospital, at St. Petersburg, established for the cure of syphilis, the preventive and curative properties of this remedy were thoroughly tried, on more than eight hundred persons, with invariable success. The physicians of this hospital kept, for the period of eighteen months, regular journals and protocols of all the cases in which this remedy was tried; and these documents, signed by the administrative officers, and by all the physicians of the establishment, were, by order of the Prime Minister, handed over to the Medical Council at St. Petersburg. This body appointed a committee, who also instituted a series of experiments with the most complete success; and they reported that this prophylactic had '*satisfied all their expectations, and that it had failed in no case to prevent the contraction of syphilis.*'

As a result of these thorough trials, the Emperor granted to the discoverer a gratification, in acknowledgment of the incalculable blessing his discovery would prove to the human family. The body physician of the Emperor, Dr.

Von Arndt, in speaking of this discovery, says, 'that its beneficial consequences upon human society will perhaps be as important as the great discovery of Dr. Jenner, in the prevention of the ravages of the small-pox.' And the physician of the Empress, Dr. Von Marcus, expressed his views on that subject pretty much in the same language."

As a test of the virtues of this alleged prophylaxis Dr. Pfeiffer of Philadelphia is willing to submit to inoculation with the syphilitic virus, under the direction of a committee of medical gentlemen.

It is not impossible that some objection may be made to this discovery, should it realize what is claimed for it, on the score of morality; but the path of our own duty, we conceive, lies plainly before us, requiring every possible effort, on our part, to alleviate the "ills that flesh is heir to," without inquiring too curiously into the hidden relations of good and evil.

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What does Bi-Monthly mean?—A correspondent of the Southern Literary Messenger from this city, tries to be witty at the expense of this Journal, as regards the use of the word "*bi-monthly*."

"When a newspaper," he says, "is published 'bi-weekly,' we receive two copies a week; and 'tri-weekly,' three papers a week, but the 'New York Journal of Medicine' comes to us once in two months instead of twice a month. If 'bi-weekly' means twice a week, and not once in two weeks, why should 'bi-monthly' mean once in two months, and not twice a month? This is a question for etymologists. Let them decide."

Now we feel obliged to this correspondent for giving us an opportunity of saying a word upon a point which has never been entirely clear in our own mind; but we can assure him, that the sense in which we use the word *bi-monthly*, was adopted only after mature reflection.

The word, *bi-weekly* or *bi-monthly*, is not to be found in the Dictionaries of Webster, Richardson, Johnson, or Walker; but we find in all of them the analogous word, *biennial*, from *bis* and *annus*, in the meaning of which all agree, and which Webster defines as "*happening or taking place once in two years.*" Hence we are taught by analogy to define *bi-monthly*, as occurring once in two months. In the uncertainty pertaining to this point, we had once determined to adopt the use of the word, *bimensal*, which is defined by Webster—"occurring once in two months;" but, on sober second-thought, we came to the conclusion that our philosophical readers, the grave sons of Æsculapius, would regard it as pedantic. We, therefore, adopted, in the use of the word, *bi-monthly*, what may be regarded as a strictly anglicized form of the word, *bimensal*, derived, as in the case of *biennial* given above, from *bis* and *mensis*.

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Medical Schools, Etc.—Since our last number was issued, we have received the catalogue of Bowdoin College and the Medical School of Maine, the Annual Announcement of the Berkshire Medical Institution, the Introductory Lecture to the Spring Session of Lectures in Castleton Medical College, by Joseph Perkins, M.D., the Address to the Graduating Class of the Medical College of Georgia, by George F. Pierce, the Circular of the Cleveland Medical College for 1843–4, and the Proceedings of the Medical Society of the State of Tennessee at the Fifteenth Annual Meeting, in May, 1844.

Whatever disposition we might have to notice these various matters in detail, is effectually frustrated by the *ipse dixit* of that important personage, the printer's Ariel, who has just informed us, that we have already overrun our limits by as much as twenty pages.

Monument to Joseph Lovell, M.D., late Surgeon-General of the Army of the United States.—The following description of this monument has appeared in a circular, received from the Medical Bureau at Washington:

"During the past winter a monument of unusual dimensions, and great beauty, which the Medical Officers of the Army have caused to be erected in memory of the late Surgeon-General, Joseph Lovell, has been placed in the Congressional burying ground near this city. The structure, which was designed and executed by Mr. Robert E. Launitz, of New York, is of a rectangular form, and in the Grecian style. Upon a granite base five feet square, rests a superstructure of the finest Italian marble, weighing about ten tons, and reaching a height of fifteen and a half feet. A pedestal, formed from a solid block, two feet six inches square, and three feet high, upon which the inscriptions are cut, is raised to the level of the eye upon a double plinth, and crowned with a bold entablature having its frieze and cornice proper, and finished on two sides with pediments. Over all a pyramidal shaft, twenty inches square at its foot, rises with an easy taper seven feet, terminating in a capital formed after the solemn and impressive style of the ancient sarcophagi.

"In its architectural details the monument is extremely chaste and unadorned, but bold and imposing in its outline, and cannot but draw admiration from the singular beauty of its proportions.

"THE FOLLOWING ARE THE INSCRIPTIONS ON THE MONUMENT.

ON THE FRONT OF THE MONUMENT:

Joseph Lovell,
Late Surgeon-General
of
The Army of the United States.
Born in Boston, Massachusetts,
December 22d, 1788;
Died in the city of Washington,
October 17th, 1836.

ON THE RIGHT FACE OF THE MONUMENT:

In April, 1812,
On the eve
Of Hostilities with Great Britain,
He entered
The military service of his country
as Surgeon,
and served with distinction
throughout the war.
After six years arduous duty
in Camp and in the Field,
He was called,
on the reorganization
of
The General Staff of the Army,
from the station
of Hospital Surgeon
to
The Head of the Medical Department,
which,
till the close of life,
He directed, improved, and adorned.

ON THE LEFT FACE OF THE MONUMENT:

In September, 1817,
He was united in wedlock,
with
Margaret Eliza Mansfield,
The devoted and cherished
Partner of his life,
who rests beside him,
under this tomb.
Exemplary members of the church,
In all their domestic relations
They lived
Patterns of excellence,
and dying,
Bequeathed to their posterity
a rich inheritance
In their bright example.

ON THE REAR OF THE MONUMENT:

As a testimonial
of
His private virtues
and
Public services,
The officers of the Medical Staff
have caused
This monument to be erected,
December, 1843.

'*Virtus, repulsæ nescia sordidæ,*
Intaminatis fulget honoribus.'"

Medical Journals.—If the number of medical journals that a country has, is an index of its prosperity in that profession, then ought the United States and Canada to be considered as making the most rapid advances.

Quite recently we have received the first two Nos. of the "*Montreal Medical Gazette*," which is published monthly, each No. containing thirty-two pages. It is edited by Drs. Francis Badgley and William Sutherland, both of that city. There are surely practitioners enough in the British North American Possessions, especially if we include the medical staff of the different regiments stationed at her various military posts, to sustain a journal both in the way of pecuniary and literary contributions. As there are many eminent medical men in Lower Canada, who cannot even speak the English language, it is a feature of this Journal, that its pages are open to contributions in both the English and French languages. The subscription is fifteen shillings per annum.

The "*Illinois Medical and Surgical Journal*," which is issued monthly, was ushered into existence on the first of last April. Each Number contains sixteen pages, and the terms are, one dollar a year in advance.

"*The St. Louis Medical and Surgical Journal*," edited by M. L. Linton, M.D., reached, on the first of May, its second volume. Containing sixteen pages, it is published monthly; and, like the last, for one dollar a year.

The "*New Orleans Medical Journal, devoted to the Cultivation of Medicine and the Associate Sciences*," was commenced on the first of May. It is edited by Drs. Erasmus D. Fenner and A. Hester. The first Number contains 120 pages, and it is to be published bi-monthly, at the price of five dollars per annum.

The "*Western Lancet*," edited by L. M. Lawson, M.D., reached, on the first of May, its third volume. Published monthly, each Number contains forty-eight pages, and the terms are $3 per annum.

"*The Western Journal of Medicine and Surgery*," edited by Drs. Drake, Yandell, and Colescott, containing ninety-six pages, issued monthly, is the oldest medical journal of the Western States. May all the youthful progeny, in the way of medical periodicals, west of the Alleghanies, be equally successful with this one.

We hear of a new medical journal in contemplation in the western part of our own State, to be entitled "*The American Journal of Insanity*." It is to be a quarterly of ninety-six pages, and to be edited by the officers of the New York State Lunatic Asylum, at the head of which institution is Dr. A. Brigham, well known for his knowledge upon this subject. It is to come into existence simultaneously with this Number.

In our eastern cities, Boston, New York, and Philadelphia, including reprints of foreign medical journals, there are just half a score more.

This journal gives 144 pages, bi-monthly, and, as in the present Number, two meteorological tables, which are equivalent to sixteen ordinary pages, in addition, all for $3 per annum.

Upon the whole, there is not perhaps any just ground for the universal complaint that our medical doctors are little addicted to reading; but, on the other hand, when it is considered that our medical schools turn out, annually, on an average, 1000 fresh *leeches*, the demand ought surely to be on the increase.

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Professor Bartlett, who has resigned his professorship in the Transylvania Medical School, has accepted a chair in the University of Maryland. His place is filled by the appointment of Dr. L. G. Watson, of North Carolina.

The Harpers have in press the following medical work: A Practical Treatise on Organic Diseases of the Uterus; being the Prize Essay to which the Medical Society of London awarded the Fothergillian Gold Medal for 1843. By John C. Lever, M.D., Member of the Royal College of Physicians, London, etc., etc. With copious additions by Gunning S. Bedford, M.D., Professor of Midwifery and the Diseases of Women and Children in the University of New York.

This is an admirable work.

—

Professor Caldwell on Animal Chemistry.—Having read what we regarded as too severe a *critique* upon this veteran's recent writings on this subject, in a late number of the "Western Journal of Medicine and Surgery," we are glad to see made, in the June number of the same journal, the *amende honorable*, in the way of a disavowment of any intentional severity.

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Dr. Sweetser's Mental Hygiène.—This work, published, nearly a year ago, by the Langleys, we are pleased to observe, has been re-published in London and Edinburgh. In the absence of an international copyright law, the authors of both countries must be content with the unsubstantial reward of mere honor. This, however, we deem of sufficient importance to congratulate our friend, Dr. Sweetser, upon its realisation.

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Patronage of the State to the Medical Department of New York University.—We learn with pleasure that the Legislature has appropriated to the Medical Department of this Institution the annual sum of $3000 in perpetuity.

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Sydenham Library.—In consequence of the duty, freight, and other necessary charges incident to the undertaking, the annual subscription to the Sydenham Library for 1843–4 is $6 88, instead of $5, as heretofore announced. Those who have paid $5 will oblige the undersigned by leaving the balance with H. G. Langley, 8 Astor House, or with the Subscriber, 418 Hudson Street.—*June* 25, 1844. C. A. Lee, *Sec.*

[*Extract of a letter from the Secretary, dated London, May* 2, 1844.]

"We shall give three handsome volumes, printed on beautiful paper, and comprising somewhere about 2,000 pages of close print, for the first year's subscription of £1. 1s., so that it will be difficult, I should imagine, for any bookseller to compete with us. It will be quite out of the question to send out any books to America, excepting for regular subscribers who have paid their subscriptions in advance. We adhere rigidly to this principle in our own country, to avoid any uncertainty or speculation in our proceedings.

"Yours, very truly,

"Dr. C. A. Lee." "James R. Bennett, *Hon. Sec.*

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Electro-Magnetism, Iodine Baths, etc.—We would again call attention to the advertisement of J. H. Ross, contained in the publisher's advertising sheet, who gives his attention to cupping and leeching, and to the application of electro-magnetism, of sulphur-fume, hot air, and iodine, chlorine, and vapor baths. We mention this because, as Mr. Ross has received a regular medical education, and as he is willing to devote his time exclusively to these subordinate branches of the healing art, the profession will find it to their own advantage to give him their patronage.

METEOROLOGICAL R

STATION, Fort Columbus, New York Harbor. Latitude 40° 42′ North. Longitude 74° 9′ West. Altitude of Barometer

1844.	THERMOMETER.				THERMOMETER ATTACHED.				THERMOMETER DETACHED.					CLEARNESS OF THE SKY.				WIND.		
April.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Daily Mean.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Sunrise.	9 A. M.	3 P
	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.							
1	30·410	30·437	30·646	30·709	37°·4	41°·0	50°·0	50°·0	27°	31°	36°	32°	32°·5	10	10	10	10	NE 2	NE 1	N
2	30·685	30·685	30·6·5	30·6·5	39·2	41	53·6	47·3	28	32	47	34	37·5	10	6	10	10	NE 2	NE 1	N
3	30·528	30·536	30·331	30·252	42·8	45·5	55·4	51·8	33	38	52	44	42·5	10	10	10	10	SW 1	SW 1	S
4	30·244	30·173	30·134	30·040	50	55.4	62·6	59	46	52	65	56	55·5	10	10	10	10	SW 0	W 0	S
5	30·040	30·040	30·016	30·016	59	60·8	57·2	53·6	56	57	52	48	·54	10	10	0	0	N 0	NE 0	N
6	30·292	30·319	30 315	30·331	50	55.4	51·8	50	40	48	45	42	42·5	4	0	0	0	NE 1	NE 0	N
7	30·370	30·370	30·385	30·331	50	50	55·4	49·1	42	46	50	45	46	0	3	0	0	NE 1	NE 0	SE
8	30·398	30·398	30·370	30·276	50	51.8	59	57·2	45	49	62	60	53·5	0	0	0	0	SE 0	SW 0	S
9	30·083	30 055	30·016	30·276	57·2	59	60·8	55·4	55	60	60	52	57·5	0	2	0	0	W 0	SW 0	N
10	30·004	30·04	30·063	30·095	51·8	55·4	62·6	57·2	44	52	69	53	56·5	0	10	10	0	NW 1	NW 1	S
11	30·095	30·095	30·118	30·079	50	59	64·4	59	50	58	72	54	61	10	10	10	0	W 1	SW 1	S
12	30·067	30·079	30·079	30·095	53·6	55·4	62·6	57·2	48	52	65	50	56·5	6	10	10	0	NE 1	NE 1	N
13	30·110	30·110	30·122	30·122	55·4	55·4	64·4	59	47	55	75	56	61	0	4	10	10	SW 0	W 0	S
14	30·122	30·122	30·134	30·083	57 2	60·8	66·2	62·6	54	60	78	62	66	10	10	10	0	SW 1	SW 1	W
15	30·004	30·004	30·004	29·9.5	59	62·6	66·2	59	55	68	76	52	65·5	4	5	10	10	S 1	NW 1	N
16	30·063	30·063	30·044	30·044	57·2	58·1	62·6	57·2	54	58	62	56	58	6	2	0	0	SE 0	SW 0	N
17	30·016	30·016	30 044	30·055	55·4	57·2	60·8	53·6	54	56	68	54	61	0	0	8	0	NW 1	NW 1	N
18	30·083	30·118	30·173	30·173	50	55·4	57·2	51·8	44	48	52	48	48	10	10	6	0	NE 4	E 2	SE
19	30·063	30·095	30·122	30·122	50	53·C	53·6	51·8	44	49	56	50	50	6	8	8	0	NE 2	NE 2	N
20	30·134	30·122	30·110	30·110	53·6	55·4	57·2	51·8	49	53	58	51	53·5	0	0	4	0	NE 1	NE 1	N
21	30·014	30·024	30·024	30·055	53·6	55·4	55·4	55·4	48	50	52	51	50	0	0	0	0	NE 0	NE 0	N
22	30·063	30·063	30·095	30·095	57·2	59	64·4	59	55	65	72	58	63·5	10	10	10	0	W 1	W 0	S
23	30·083	30·083	30·083	30·083	57·2	57·2	57·2	57·2	52	56	55	52	53·5	0	0	0	0	SE 1	SE 2	SE
24	30·134	30·055	30 004	29·898	55·4	57·2	64·4	59	54	60	70	58	62	0	6	10	10	S 1	S 1	S
25	29·957	29·957	29·977	29·977	57·2	57·2	66·2	59	54	58	72	62	63	0	10	10	0	NW 5	NW 1	N
26	29·957	29·977	29·701	29·669	59	62·6	64·4	60·8	56	62	70	63	63	0	10	0	0	N 0	NW 1	N
27	30·016	30·040	30·010	30·055	53·6	55·4	57·2	53·6	48	56	52	48	50	0	10	0	0	E 2	SE 1	SE
28	30·083	30 063	30·063	30·063	51·8	53·6	59	55·4	48	50	64	50	56	0	0	6	0	SE 1	SE 1	E
29	30·079	30·079	30·001	30·016	51·8	55·4	66·2	57·2	48	58	74	56	61	10	10	10	10	N 2	NW 1	N
30	30·079	30·079	30·134	30·118	53·6	55·4	57·2	55·4	51	60	66	54	58·5	10	10	5	10	E 2	SE 1	SE
Monthly Mean.	30·143	30·142	30·144	30·129	52·64	55·21	59·84	55·52	47·63	53·23	61·63	51·70	54·63	4·53	6·20	5·10	3·00			

GICAL REGISTER.

ltitude of Barometer above low water, about twenty-five feet. Kept by JOSEPH

	WIND.				CLOUDS.				WET BULB.		RAI	
P. M.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Sunrise.	3 P. M.	Began.	Ende
									Fahr.	Fahr.		
0	NE 2	NE 1	NE 0	N 0	0	0	0	0	25°	34°		
0	NE 2	NE 1	NE 0	NW 0	0	NE 2	0	0	25	43		
0	SW 1	SW 1	SW 0	SW 1	0	0	0	0	30	48		
0	SW 0	W 0	SW 1	SW 1	0	0	0	0	43	62		
0	N 0	NE 0	NE 0	NE 1	0	0	0	0	52	49	11 A. M.	6 P.
0	NE 1	NE 0	NE 0	NE 0	NE 3	0	0	0	36	42		
0	NE 1	NE 0	SE 0	SE 0	0	0	0	0	38	46		
0	SE 0	SW 0	SW 0	SW 0	0	0	0	0	43	59		
0	W 0	SW 0	N 0	NW 1	0	0	0	0	52	57		2 P.
0	NW 1	NW 1	S 1	SE 1	0	0	0	0	41	66		
0	W 1	SW 1	SW 1	NW 1	0	0	0	0	46	68		
0	NE 1	NE 1	NE 1	SE 0	NE 3	0	0	0	45	59		
0	SW 0	W 0	SW 1	SW 0	0	0	0	0	44	71		
0	SW 1	SW 1	W 0	S 0	0	0	0	0	50	73		
0	S 1	NW 1	NE 1	SE 2	0	0	0	0	52	74		
0	SE 0	SW 0	NW 1	NW 1	0	0	0	0	50	58		
0	NW 1	NW 1	NW 2	NW 2	0	0	NW 3	0	51	64		
0	NE 4	E 2	SE 3	NE 2	0	0	SE 3	0	40	48		
0	NE 2	NE 2	NE 2	NE 1	NE 2	NE 3	NE 1	0	41	52		
0	NE 1	NE 1	NE 1	NE 1	0	0	0	0	45	54		
0	NE 0	NE 0	NE 0	NW 1	0	0	0	0	46	48	7 A. M	2 P.
0	W 1	W 0	SW 1	SW 1	0	0	0	0	51	68		
0	SE 1	SE 2	SE 0	SW 1	0	0	0	0	48	52		
0	S 1	S 1	SW 1	NW 4	0	S 2	0	0	50	66	9 P. M.	
0	NW 5	NW 1	NW 1	NW 1	0	0	0	0	50	68		
0	N 0	NW 1	NW 0	NW 0	0	0	0	0	52	65		
0	E 2	SE 1	SE 1	NW 1	0	0	0	0	44	48	7 P. M.	
0	SE 1	SE 1	E 0	NE 1	0	0	0	0	44	60		
0	N 2	NW 1	NW 1	NE 1	0	0	0	0	41	69		
0	E 2	SE 1	SE 5	S 6	0	0	SE 3	0	47	62		
·00									44·20	57·76		

RAIN.			HYGROMETER, at 3 P.M.		REMARKS.
	Ended.	Quantity	Hygrometer.	Thermometer.	
		Inches.	Fahr.	Fahr.	
			25°	38°	
			29	47	
			20	52	
			31	65	
	6 P. M.	·05	40	52	Thunder, lightning, and rain at daylight.
		·02	28	45	Passing showers during the day.
			30	50	[7 A. M.
			26	62	Very dense fog before sunrise, cleared at
	2 P. M.	·02	40	60	Passing showers from 12 M. to 2 P.M.
		·03	21	69	
			34	72	
			30	65	
			36	75	Foggy before sunrise and morning to
			32	78	10 A. M.
			30	76	
			30	62	
			27	68	
			32	52	
			30	56	
		·02	30	58	During the previous night.
	2 P. M.	·10	34	52	
			34	72	
			36	55	Foggy in the morning to 8 A. M.
		·23	34	70	Thunder and lightning in the early part of
			38	72	the night: high winds all night.
		·01	30	70	Passing shower.
			26	52	
		·07	28	64	Ended before sunrise.
			36	74	
			30	66	
		0.55	31·00	61·63	

STATION, Fort Columbus, New York Harbor. Latitude, 40

1844.	BAROMETER.				THERMOMETER ATTACHED.				THERMO	
May.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Sunrise.	9 A. M
	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.
1	30·063	30·063	30·083	30·083	51·8	55·4	66·2	60·8	52°	64°
2	30·040	30·016	30·016	30·016	53·6	60·8	64·4	60·8	60	68
3	29·941	29·921	29·622	29·575	55·4	62·6	66·2	64·4	62	70
4	29·740	29·740	29·803	29·701	62·6	66·2	66·2	62·6	60	68
5	29·819	29 813	29·858	29·882	60·8	62·6	64·4	60·8	54	62
6	29·921	29·819	29·803	29·662	60·8	62·6	62·6	59·0	54	60
7	29·685	29·662	29 662	29·819	57·2	59·0	64·4	60·8	56	62
8	29·858	29·898	29·898	29·898	60·8	61·7	64·4	60·8	60	65
9	29·898	29·921	29·921	29·921	62·6	64·4	66·2	60·8	57	64
10	30·173	30·173	30·173	30·173	60·8	62·6	62·6	60·8	56	60
11	30·173	30·173	30·197	29·819	57·2	59·0	62·6	59·0	50	52
12	29·740	29·662	29·528	29·543	60·8	62·6	64·4	59·0	66	70
13	30·055	30·055	30·055	30·095	55·4	60·8	62·6	59·0	60	64
14	30·134	30·166	30·213	30·213	57·2	59·0	60·8	59·0	55	58
15	30·213	30·213	30·173	30·055	57·2	60·8	66·2	57·2	51	64
16	30·000	29·969	29·898	29·898	55·4	57·2	59·0	55·4	58	60
17	29·858	29·858	29·859	29·937	55·4	59·0	59·0	57·2	53	60
18	29 977	29·965	29·969	29·969	59·0	59·0	66·2	60·8	56	58
19	30 197	30·197	30·158	30·158	59·0	66·2	68·0	62·6	60	64
20	30·063	30·063	30·079	29·921	59·0	60·8	60·8	59·0	58	60
21	29·847	29·847	29·902	29·902	60·8	62·6	62·6	59·0	56	59
22	30·378	30·394	30 394	30·394	50·0	53·6	57·2	57·2	40	50
23	30·398	30·398	30·374	30·418	57 2	57·2	61·7	57·2	50	58
24	30·418	30·378	30·315	30·599	59·0	60·8	66·2	66·2	50	64
25	30·599	30·162	30·059	30·099	66·2	66·2	71·6	73·4	60	72
26	29·992	29·902	29·886	29·886	66·2	68 0	72·5	73·4	60	68
27	29·906	29·906	29·886	29·909	68·0	69·8	72·5	69·8	62	76
28	29·961	29·961	29 925	30·240	68·0	68·0	72·5	69·8	60	72
29	29·961	29 925	30·036	29·961	66 2	66·2	72·5	68·9	60	64
30	29·925	30·004	29·965	29·807	66·2	66·2	65·3	65·3	60	68
31	29·768	29·729	29·768	30·162	64·4	66·2	66·2	64·4	64	70
Monthly Mean	30·023	30·000	29·983	29·991	59·83	62·17	64·90	62·08	57·00	63·68

METEOROLOGICAL

de, 40° 42′ North. Longitude, 74° 9′ West. Altitude of Barometer a

THERMOMETER DETACHED.				CLEARNESS OF THE SKY.				WIND.		
9 A. M.	3 P. M.	9 P. M.	Daily Mean.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Sunrise.	9 A. M.	3 P. M.
Fahr.	Fahr.	Fahr.	Fahr.							
64°	76°	64°	64°	10	10	10	10	S 1	SW 1	SW 2
68	77	64	68·5	10	10	10	10	SW 1	S 1	SE 0
70	79	72	70·5	10	10	10	0	NE 1	NW 1	NW 1
68	74	68	67	6	10	10	10	W 1	NW 2	NW 1
62	74	64	64	10	10	10	10	W 1	SW 2	NW 1
60	64	58	59	10	0	5	0	SE 1	SE 0	SE 5
62	70	61	63	10	10	10	10	W 5	W 6	W 5
65	68	64	64	10	10	10	10	SW 1	SW 2	SW 0
64	72	66	64·5	10	10	10	10	NW 1	NW 0	NW 0
60	64	52	60	10	10	6	0	N 1	W 1	S 3
52	61	56	55·5	0	0	0	0	SE 1	SE 1	SE 0
70	72	58	69	4	5	10	0	NE 3	NE 1	NW 3
64	74	59	67	10	10	10	0	NW 1	NW 0	NW 0
58	60	56	57·5	0	0	0	0	N 1	NE 1	NE 0
64	74	60	62·5	10	10	10	0	N 1	NE 1	NE 0
60	58	54	58	0	0	0	0	SE 1	SE 1	E 0
60	60	58	56·5	0	0	0	0	NE 1	NE 1	NE 1
58	70	60	63	0	0	4	4	N 1	N 2	N 3
64	80	70	70	6	8	8	0	SW 1	SW 1	SE 3
60	64	56	61	0	0	0	0	SE 2	SE 1	SE 1
59	64	50	60	0	0	10	0	SW 2	SW 2	NW 3
50	60	50	50	8	8	10	10	NE 1	NE 1	NE 1
58	62	60	59	10	10	10	10	SW 1	SW 1	SE 3
64	80	66	65	10	10	10	10	W 1	W 0	SE 1
72	84	72	72	10	10	10	10	SW 0	S 1	W 0
68	86	68	73	10	4	4	0	SW 1	NE 2	SW 3
76	74	68	68	4	4	4	0	SW 1	SW 2	SW 2
72	80	70	70	0	4	4	4	SW 1	SW 2	N 2
64	82	62	71	10	10	10	4	NW 1	N 1	N 1
68	64	60	62	10	4	0	0	SE 1	SE 2	SE 3
70	68	60	66	0	0	0	0	SE 1	SE 2	SW 0
63·68	71·00	61·48	63·89	6·39	6·00	6·61	3·93			

LOGICAL REGISTER.

Altitude of Barometer above low water, about twenty-five feet. Kept by Jos

	WIND.				CLOUDS.				WET BULB.			
P. M.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Sunrise.	3 P. M.	Began.	E
									Fahr.	Fahr.		
0	S 1	SW 1	SW 2	SW 1	0	0	0	0	48°	72°		
0	SW 1	S 1	SE 0	NE 0	0	0	0	0	56	74		
0	NE 1	NW 1	NW 1	NW 6	0	0	0	0	58	75	6½ P.M.	
0	W 1	NW 2	NW 1	W 1	W 3	0	0	0	56	70		1
0	W 1	SW 2	NW 1	NW 1	0	0	0	0	50	70		
0	SE 1	SE 0	S& 5	SW 5	0	0	SE 1	0	51	60	6 P.M.	7
0	W 5	W 6	W 5	SW 2	0	0	0	0	53	66		
0	SW 1	SW 2	SW 0	SW 0	0	0	0	0	58	65		
0	NW 1	NW 0	NW 0	NW 0	0	0	0	0	54	70		
0	N 1	W 1	S 3	S 5	0	0	S 3	0	54	60	11 P.M.	
0	SE 1	SE 1	SE 0	SE 0	0	0	0	0	49	59		1
0	NE 3	NE 1	NW 3	NW 6	0	NE 1	0	0	62	68	12 M.	3
0	NW 1	NW 0	NW 0	NW 0	0	0	0	0	58	70		
0	N 1	NE 1	NE 0	N 1	0	0	0	0	52	56	7 A. M.	11
0	N 1	NE 1	NE 0	E 0	0	0	0	0	49	71		
0	SE 1	SE 1	E 0	E 0	SE 1	SE 2	0	0	54	54	6 A. M.	8
0	NE 1	NE 1	NE 1	NE 0	0	NE 1	0	0	50	56		
4	N 1	N 2	N 3	N 2	0	N 2	N 3	N 1	53	62		
0	SW 1	SW 1	SE 3	SE 1	SW 2	SW 2	SE 1	0	56	76		10
0	SE 2	SE 1	SE 1	SE 1	0	0	0	0	58	62		3
0	SW 2	SW 2	NW 3	NW 2	0	0	0	0	55	63	9 P. M.	
0	NE 1	NE 1	NE 1	SW 1	NE 1	NE 1	0	0	36	56		7
0	SW 1	SW 1	SE 3	SE 0	0	0	0	0	42	64		
0	W 1	W 0	SE 1	S 1	0	0	0	0	46	76		
0	SW 0	S 1	W 0	W 0	0	0	0	0	59	84		
0	SW 1	NE 2	SW 3	S 1	0	NE 1	SW 3	0	58	83		
0	SW 1	SW 2	SW 2	W 1	SW 2	SW 1	SW 2	W 1	58	70	7¼ P. M.	9
4	SW 1	SW 2	N 2	W 2	0	0	0	W 2	57	77		
4	NW 1	N 1	N 1	N 1	0	0	0	N 1	57	80		
0	SE 1	SE 2	SE 3	SE 2	SE 1	SE 2	SE 3	0	58	64	3 P. M.	6
0	SE 1	SE 2	SW 0	SW 0	SE 2	SE 2	0	0	63	67	12 M.	2½
3·93									53·80	67·70		

y JOSEPH P. RUSSELL, M. D., Medical Staff, U. S. A.

RAIN			HYGROMETER, at 3 P.M.		REMARKS.
gan.	Ended.	Quantity	Hygrometer.	Thermometer.	
		Inches.	Fahr.	Fahr.	
			19°	76°	
			21	77	
P.M.			30	79	Very strong north-west wind with thunder,
	1 A.M.	·76	36	74	lightning and rain from 6½ P.M. until 1
		·03	30	74	A.M. the previous night.
.M.	7 P.M.	·22	30	64	Foggy from 8 A.M. until 1 P.M. Sudden
			40	70	and violent squall at ¼ to 5 P.M., attend-
			30	68	ed by thunder, lightning, hail and rain.
			28	72	Bar. 29·869, Ther. attached 59.—lowest
.M.			34	64	depression.
	12 M.	·80	35	61	Rain gauge on the roof (elevation 35 ft.) 65.
M.	3 P. M.	·11	40	72	Very strong wind from N.W. with thunder
			28	74	and lightning. Bar. 29·528 inch. lowest
M.	11 A.M.	·06	36	60	Rain gauge on the roof, ·04. [depression.
			28	74	
. M.	8 A.M.	·03	36	58	Rain gauge on the roof, ·03.
			38	60	
			20	70	
	10 A.M.	·04	30	80	Began before sunrise.
	3 P. M.	·18	58	64	" " "
M.			40	61	
	7 A.M.	·18	30	60	Thunder and lightning greater part of the
			26	68	night.
			26	80	
			24	84	
			24	86	
. M.	9 P.M.	·18	30	74	
			25	80	
			40	82	[on the roof.
M.	6 P. M.	·40	60	64	·40 in the gauge in the yard, .25 in the gauge
M.	2½ P.M.	·42	56	68	Before sunrise ·02 fell.
		3·41	33·16	71·00	

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TO READERS, CORRESPONDENTS, ETC.

To the Editors of Foreign Medical Journals.—Since the inception of this Journal, we have punctually transmitted each number to certain foreign editors; and among these, some have re iprocated the civility by an exchange Among those who have not done so, and still continue to extract largely from our pages, we would venture to suggest the propriety of sending their Journals in return.

Communications have been received from Dr. H. H. Steiner, of the U. S. Army; Lt. Edwin R. Long, U. S. Army; and Dr. G. O. Jarvis, of Portland, Conn.

We have to acknowledge the receipt of the following works:

Lectures on the Theory and Practice of Midwifery. Delivered in the Theatre of St. George's Hospital. By Robert Lee, M.D., F.R.S., Fellow of the Royal College of Physicians, London; Physician to the British Lying-in-Hospital; and Lecturer on Midwifery in St. George's Hospital. Illustrated with numerous wood engravings. Philadelphia: Ed. Barrington & Geo. D. Haswell. 1844. (From the Publishers.)

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A Manual of Examinations upon Anatomy and Physiology, Surgery, Practice of Medicine, Chemistry, Materia Medica, Obstetrics, etc. By J. L. Ludlow, M.D. Philadelphia: Ed. Barrington & Geo. D. Haswell. 1844. (From the Publishers.)

On Sterility in the Male and Female, its Causes and Treatment. By the Chevalier V. Mondat, D.M.P., Professor of Anatomy and Diseases of Women and Children, etc. Translated from the fifth French edition. With fifty Illustrations. New York: J. S. Redfield. 1844. (From the Publisher.)

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The Report of the Albany County Medical Society relative to the Statutes regulating the Practice of Physic and Surgery in this State

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